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ABSTRACT

Computerized analysis of current statistical data and projected declining enrollments in Metropolitan Toronto show that the decrease in staffing requirements over the next ten years will increase the average salary of teachers in uninflated dollars mainly through the increase in teachers' average experience. Boards with lower than average teaching experience will face a greater increase in average salary than boards with higher than average teaching experience. Attrition rates have an impact less significant than that of experience. An increase or decrease in the pupil/teacher ratio has its greatest impact on average salaries in the first year of implementation. The timing, duration, and magnitude of the impact on average salaries depends on the enrollment projection used. In elementary schools the average salary may increase up to ten percent over ten years, compared to a six percent increase if enrollment were static. In secondary schools the figures are eleven percent compared to six percent. The bulk of this document consists of illustrative tables and graphs. (Author/PGD)

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THE METROPOLITAN TORONTO SCHOOL BOARD

The Probable Effect of Declining Enrolments on Average Elementary and Secondary School Teacher's Salary from 1977 to 1986

A Study for The Metropolitan Toronto School Board

by

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Comptroller of Finance,
and the staff of The School Board.

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March, 1978

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THE METROPOLITAN TORONTO SCHOOL SYSTEM

The Probable Effect of Declining Enrolments on Average Elementary and Secondary School Teacher's Salary from 1977 to 1986

This Study attempts to provide some insight into the probable effect of declining enrolments on average teacher's salary, teaching staff requirements, teaching staff experience, attrition rates and related factors in the elementary and secondary school systems in Metropolitan Toronto along with the probable magnitude associated with each of the above factors at various levels of declining enrolment.

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I. INTRODUCTION

Over the next decade, declining enrolments will be one of the most significant factors in planning and financing for education in the Province of Ontario. It appears from the projections presently available that the enrolment decline in Metropolitan Toronto will be more severe than the average decline across the Province.

The purpose of this study is:

(1) To provide some insight into the probable effect of declining enrolments on teaching staff requirements, teaching staff experience, average salary, attrition rates and related factors.

(2) To provide information as to the probable magnitude of change associated with each of the above factors at various levels of declining enrolment.

(3) To assess the effect of variations in pupil/teacher ratio on average teacher's salary.

(4) To examine the effect of variations in attrition rates including the role played by resignations and retirements on average teacher's salary.

(5) To determine the effect of teacher experience on average teacher's salary in a board with a higher than average teacher experience compared to a board with a lower than average teaching experience.

In recognition of the fact that there is some disagreement as to the magnitude and duration of declining enrolments in the elementary and secondary school systems in Ontario, certain parts of the study include other enrolment projections which are different from the basic enrolment projection being used by the School Board staff for planning purposes.

II. CONCEPT OF FUTURES MODELLING

In order to be able to interpret and to utilize the results of this study, it is necessary for one to understand the concept of futures modelling. It is not an attempt to foretell or to predict the future. It is a technique for exploring the probable future planning and financial effect of such factors as:

(1) trends in elementary and secondary enrolments
(2) various attrition rates including retirements and resignations
(3) projected teacher staffing requirements
(4) projected teacher experience groups within the total teacher population
(5) "young" boards versus "old" boards

The computer model which is described later in this report is an interactive one. It is possible to alter the input of data relative to the above factors in order to explore the possible future implications of changes in any one factor or any one combination of factors. This process enables one to determine the most significant factors influencing educational financing.

Whenever possible, the basic data in the computer model has been obtained from those sources which are most informed and knowledgeable in each specific data category.

III. STRUCTURE OF THE MODEL

The purpose of the model is to assess the impact of declining enrolment on average teachers' salaries. To do this a computer program was written to access the "teachers on grid" files. These files show the numbers of teachers by classification and years of experience. The program calculates average salary by using the grid salaries of the current contract.

To assess the impact of declining enrolment on average salary for each year of the study the "teachers on grid" matrix must be updated for each year of the simulation to represent the two situations being compared, namely:

(1) declining enrolment -- teacher surplus
(2) no declining enrolment -- no teacher surplus.

To update the "teachers on grid" matrix, certain data must be input for every year. These data items are:

(1) number of retirements
(2) number of resignations
(3) number of lay-offs or hirings

In the situation of declining enrolment, lay-offs occur when the total teacher surplus is greater than the sum of the number of resignations and retirements (total attrition). If the total attrition is greater than the total teacher surplus then hiring of teachers occurs. In the situation of no declining enrolment, the number of teachers is held constant at the 1977 level. The total attrition is therefore offset by an equal number of teachers hired.

Teachers are retired only from step 20. The model retires only those teachers that have reached 20 years of experience. Hiring occurs only at step 0. Teachers are only hired that have no experience and are at the bottom of the salary scale. Lay-offs occur at the lowest possible step. Teachers with the least experience are laid off first. Resignations occur in the range of step 4 to step 15. The model resigns teachers with more than 3 years but less than 16 years of experience.

The model updates the "teachers on grid" matrices by the input parameters of resignations, retirements and lay-offs/hirings for both the declining enrolment and static enrolment situation. The program then increments all remaining teachers to give them one more year of experience. The model then calculates average salary with declining enrolment and with no declining enrolment. This process is repeated for every year of the simulation.

The model prints average salary calculations, teacher data, and specific average salary calculations in tabular format for every year of the simulation. The average salary calculations output are:

(1) teachers' average salary -- with declining enrolment
(2) teachers' average salary -- no declining enrolment
(3) amount of difference (in dollars)
(4) percentage difference between declining enrolment and static enrolment
(5) percentage difference between average salary for declining enrolment and the 1977 base average salary.

The teacher data output are:

(1) total number of teachers
(2) number of teachers retiring
(3) number of teachers resigning
(4) number of teachers laid off or hired
(5) total teacher surplus

The specific teachers' average salary calculations output are:

(1) average salary of teachers retiring
(2) average salary of teachers resigning
    (a) with declining enrolment
    (b) no declining enrolment

(3) average salary of teachers laid off
    (a) with declining enrolment
(4) average salary of teachers hired
    (a) with declining enrolment
    (b) no declining enrolment

Teacher experience groupings as a percent of the total teacher population are output for each year of the simulation. This shows how declining enrolment affects teacher experience. The following groupings are used:

Teachers with (1) five or more years of experience
(2) ten or more years of experience
(3) fifteen or more years of experience
(4) twenty or more years of experience

These calculations are output for the declining enrolment situation only.

IV. BASIC DATA AND ASSUMPTIONS

The basic data and assumptions utilized in the model are as follows:

(1) Enrolment projections, elementary and secondary (IV - Exhibits 1,2,3,4)

(a) M.T.S.B. standard enrolment projection

(b) Alternative 1--the O.I.S.E. (Ontario Institute for Studies in Education) projection for Metropolitan Toronto applied to the years 1983 to 1986, Elementary and 1985 to 1986, Secondary, to allow enrolment to continue to decline.

(c) Alternative 2--The Ministry of Education's enrolment projection for the Province of Ontario applied proportionately to the Metropolitan Toronto enrolment.

(2) It is assumed that 15% of the Elementary teaching staff and 17% of the Secondary teaching staff on grid would remain fixed throughout the term of the projection, i.e., the "fixed" staff would not decline in proportion to the decline in enrolment.

(3) The projection of average salaries is in constant dollars, i.e., 1977 dollars with no annual salary adjustment or inflation factor applied.

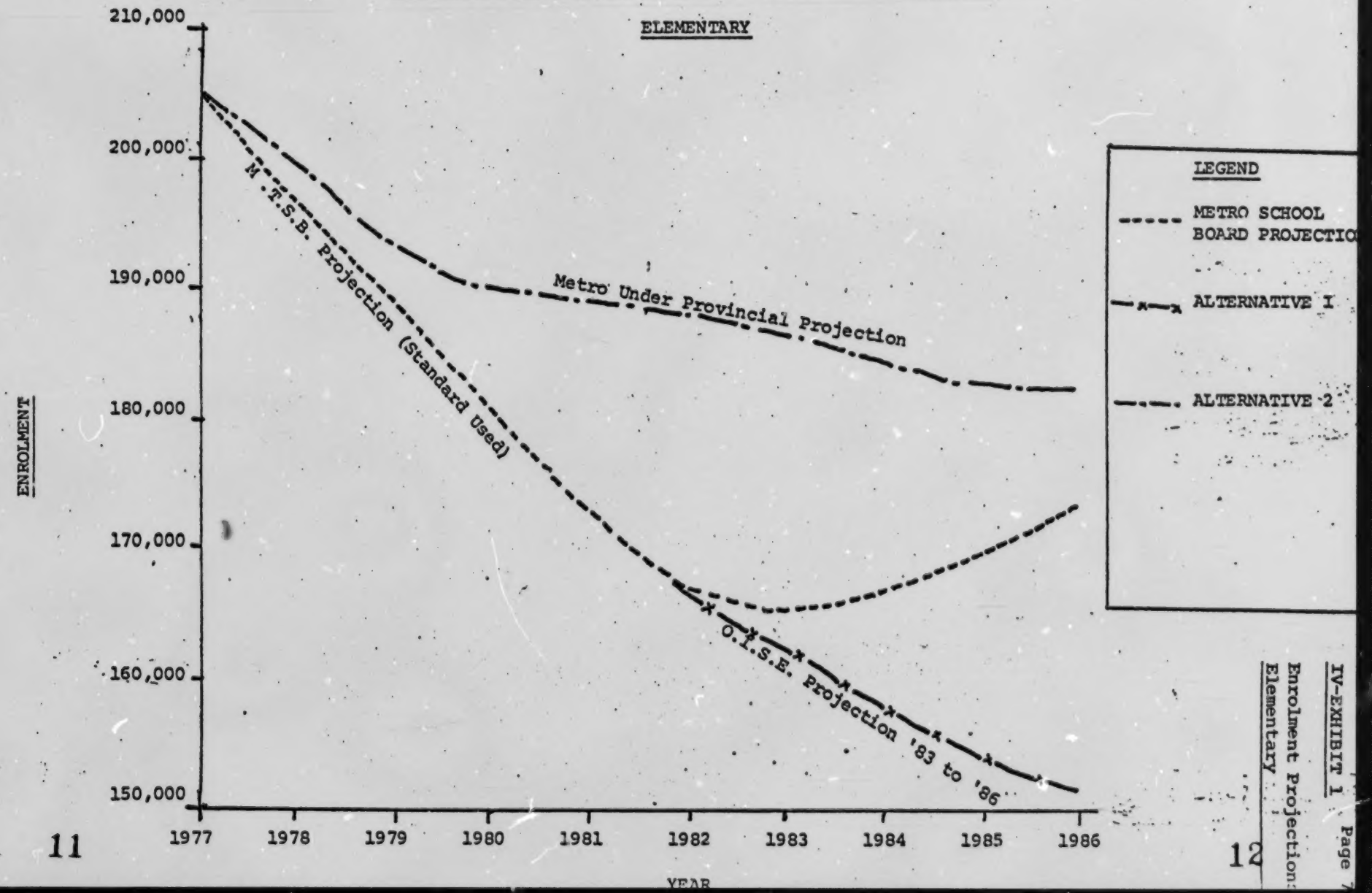
(4) Grid salaries used are from the current public school and secondary school teacher contracts in Metropolitan Toronto.

(5) Grid placement of teachers is based upon October 31, 1977, data for teachers in the elementary school and secondary school systems in Metropolitan Toronto.

THE METROPOLITAN TORONTO SCHOOL BOARD

ENROLMENT PROJECTIONS USED FOR SALARY ANALYSIS STUDY

ELEMENTARY



IV-EXHIBIT 1 Page 7

Enrolment Projections
Elementary

THE METROPOLITAN TORONTO SCHOOL BOARD

ENROLMENT PROJECTIONS USED FOR SALARY ANALYSIS STUDY

ELEMENTARY

PROJECTION	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Metro School Board's Projection (Standard)	205,650	197,269	188,888	180,802	172,914	167,023	165,485	167,240	170,034	173,145
- % Change		- 4.1%	- 4.2%	- 4.3%	- 4.4%	- 3.4%	- 0.9%	+ 1.1%	+ 1.7%	+ 1.8%
Alternative 1	205,650	197,269	188,888	180,802	172,914	167,023	162,680	158,125	154,488	152,325
- % Change		- 4.1%	- 4.2%	- 4.3%	- 4.4%	- 3.4%	- 2.6%	- 2.8%	- 2.3%	- 1.4%
Alternative 2	205,650	199,275	193,097	190,587	189,634	188,496	186,800	184,745	183,452	183,268
- % Change		- 3.1%	- 2.2%	- 1.3%	- 0.5%	- 0.6%	- 0.9%	- 1.1%	- 0.7%	- 0.1%

Alternative 1: The O.I.S.E. projection for Metropolitan Toronto is applied for the years 1983 to 1986 to allow enrolment to continue to decline.

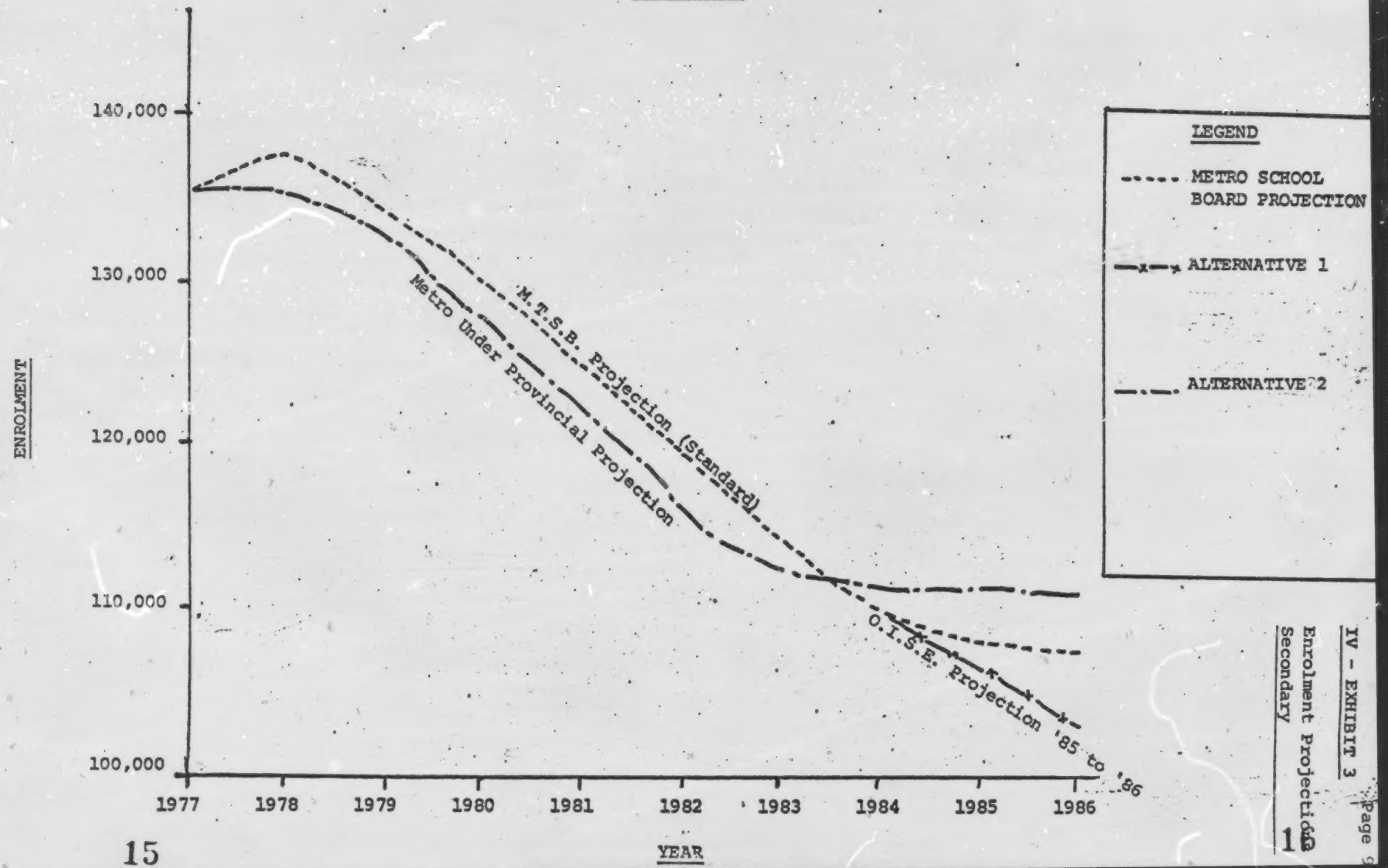
Alternative 2: The Ministry's enrolment projection for the entire Province of Ontario is applied proportionately to the current Metropolitan Toronto enrolment.

1978 03 31

THE METROPOLITAN TORONTO SCHOOL BOARD

ENROLMENT PROJECTIONS USED FOR SALARY ANALYSIS STUDY

SECONDARY



IV - EXHIBIT 3
Page 9
Enrolment Projections
Secondary

15

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THE METROPOLITAN TORONTO SCHOOL BOARD

ENROLMENT PROJECTIONS USED FOR SALARY ANALYSIS STUDY

SECONDARY

PROJECTION	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Metro School Board's Projection (Standard)	136,090	137,987	134,348	129,974	124,802	119,439	114,336	110,301	108,287	107,976
- % Change		+ 1.4%	- 2.6%	- 3.3%	- 4.0%	- 4.3%	- 4.3%	- 3.5%	- 1.8%	- 0.3%
Alternative 1	136,090	137,987	134,348	129,974	124,802	119,439	114,336	110,301	107,189	103,492
- % Change		+ 1.4%	- 2.6%	- 3.3%	- 4.0%	- 4.3%	- 4.3%	- 3.5%	- 2.8%	- 2.6%
Alternative 2	136,090	135,817	133,101	127,510	122,155	116,169	112,917	111,787	111,564	111,564
- % Change		- 0.2%	- 2.0%	- 4.2%	- 4.2%	- 4.9%	- 2.8%	- 1.0%	- 0.2%	0.0%

Alternative 1: The O.I.S.E. projection for Metropolitan Toronto is applied for the years 1985 to 1986 to allow enrolment to continue to decline.

Alternative 2: The Ministry's enrolment projection for the entire Province of Ontario is applied proportionately to the current Metropolitan Toronto enrolment.

1978 03 31

V. EFFECT OF THE STANDARD METRO ENROLMENT PROJECTION ON AVERAGE SALARY OF TEACHERS

The simulation in this section explores the probable effect of the standard Metro enrolment projections on the average salary of teachers. This simulation is the basic standard run to which all other simulations in this study are compared.

V. - EXHIBITS 1,2,3,4--This analysis is based upon the standard Metro enrolment projections. The model variables of attrition rate, ratio of retirements to resignations and pupil/teacher ratio are indicated on each exhibit.

Comments

(1) A static enrolment would cause an impact on salaries due to the increase in the experience of the teaching force throughout the future years.

(2) The decline in enrolment adds to the impact on salaries.

(3) As the enrolment decline increases, the rate of change in the increase of average salaries decreases because teachers with the lowest experience are being laid off and not incremented. In addition, more and more teachers are being remunerated at the maximum of their category.

(4) In Metropolitan Toronto in elementary schools, it appears that there will be an increase of up to approximately 10% in the average teaching salary in constant dollars of which up to 6+% would be present if there was to be no decrease in enrolment at all. In secondary schools, there will be an increase of up to approximately 11% of which up to 6% would be present if there was to be no decrease in enrolment at all.

On V. - EXHIBIT 5, a graph of enrolment change versus average salary change over time illustrates the points made above.

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	19448	20000	20459	20854	21177	21390	21421	21261	21033	20777
AVERAGE SALARY NO DECLINING ENROLMENT	19448	19766	20035	20259	20441	20595	20713	20739	20706	20631
AMOUNT OF DIFFERENCE		234	433	595	735	795	708	521	327	146
PERCENTAGE DIFFERENCE	0.0%	1.2%	2.1%	2.9%	3.5%	3.7%	3.3%	2.5%	1.6%	0.7%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	2.8%	5.2%	7.2%	8.9%	10.0%	10.1%	9.3%	8.2%	6.8%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	9366	9523	9179	3845	8521	8280	8215	8239	8403	3530
- RETIRED		70	67	64	62	60	58	58	58	59
- RESIGNED		127	123	120	115	110	108	107	103	109
- LAID OFF		146	154	150	147	71	-101	-239	-279	-296
TOTAL SURPLUS		343	344	334	324	241	65	-74	-113	-128

MODEL VARIABLES

ATTRITION RATE - 2.0% CONSANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 35:65 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

V - EXHIBIT I Page 12

Average Salary
Metro Enrolment
Projection
Standard-Run -
Elementary

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
DECLINING ENROLMENT SALARIES OF TEACHERS										
- RETIRING		21927	22007	22185	22238	22159	22271	22105	21902	21914
- RESIGNING		18708	18827	19433	19920	20227	20641	21272	21891	21573
- LAID OFF		14873	16949	18203	17879	20373				
- HIRED							11982	12041	12043	12035
NO DECLINING ENROLMENT SALARIES OF TEACHERS										
- RETIRING		21927	22007	22185	22238	22159	22271	22105	21902	21914
- RESIGNING		18708	18779	19336	19605	20079	20730	21477	22095	22015
- HIRED		12038	12037	12024	12023	12021	12020	12041	12043	12035

V - EXHIBIT 2 Page 23

Average Salary
Metro Enrolment
Projection
Standard Run -
Elementary

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: SECONDARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	23095	23292	23768	24239	24698	25089	25389	25579	25606	25439
AVERAGE SALARY NO DECLINING ENROLMENT	23095	23292	23552	23775	23961	24111	24238	24345	24420	24466
AMOUNT OF DIFFERENCE			216	464	736	977	1151	1234	1185	972
PERCENTAGE DIFFERENCE	0.0%	0.0%	0.9%	1.9%	3.0%	3.9%	4.5%	4.8%	4.6%	3.8%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	0.9%	2.9%	5.0%	6.9%	8.6%	9.9%	10.3%	10.9%	10.1%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	8593	8683	8497	8267	7993	7717	7453	7246	7141	7124
- RETIRED		50	52	51	49	48	46	45	43	43
- RESIGNED		121	121	119	116	111	107	104	101	99
- LAID OFF		-266	18	60	104	122	111	58	-39	-125
TOTAL SURPLUS		-95	191	230	269	231	264	207	105	17

MODEL VARIABLES

ATTRITION RATE - 2.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 30:70 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

V - EXHIBIT 3 Page 14

Average Salary
Metro Enrolment
Projection
Standard Run-
Secondary

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: SECONDARY

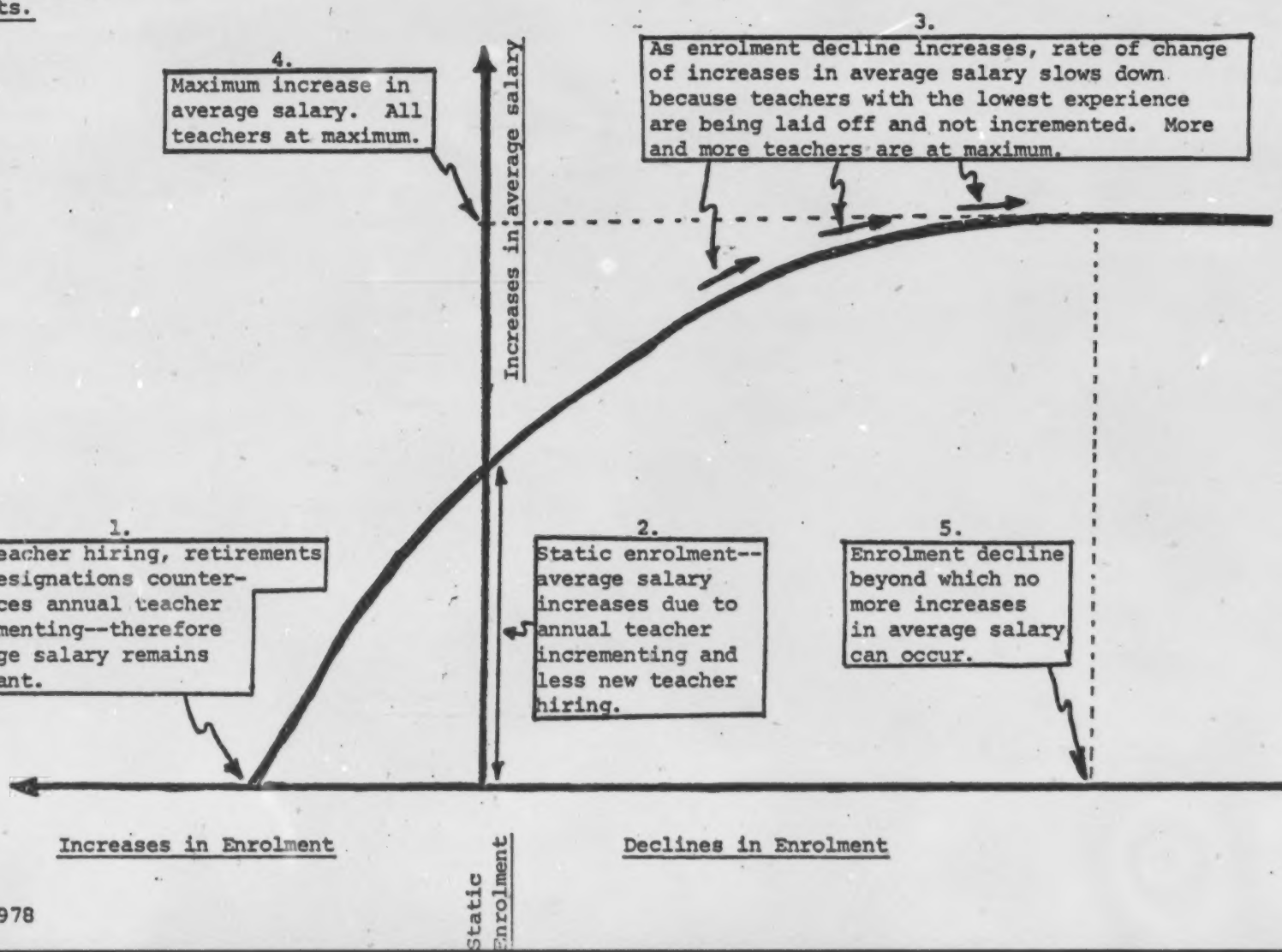
YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
DECLINING ENROLMENT SALARIES OF TEACHERS										
- RETIRING		26144	26074	26028	26018	25907	25891	25963	25843	25343
- RESIGNING		22741	22738	23021	23052	23731	24204	24913	25404	25556
- LAID OFF			14777	15931	16966	18336	20016	22073		
- HIRED		13854							13828	13851
NO DECLINING ENROLMENT SALARIES OF TEACHERS										
- RETIRING		26144	26074	26028	26018	25907	25891	25963	25843	25343
- RESIGNING		22741	22738	23021	23154	23164	22919	23033	23023	22347
- HIRED		13854	13354	13850	13853	13853	13853	13852	13861	13847

V - EXHIBIT 4 Page 15

Average Salary
Metro Enrolment
Projection
Standard Run -
Secondary

GRAPH OF ENROLMENT CHANGES VERSUS AVERAGE SALARY CHANGES OVER TIME

Constant, uninflated dollars over time--no cost of living adjustments.


3.
As enrolment decline increases, rate of change of increases in average salary slows down because teachers with the lowest experience are being laid off and not incremented. More and more teachers are at maximum.
4.
Maximum increase in average salary. All teachers at maximum.
Increases in average salary
1.
New teacher hiring, retirements and resignations counter-balances annual teacher incrementing--therefore average salary remains constant.
2.
Static enrolment--average salary increases due to annual teacher incrementing and less new teacher hiring.
5.
Enrolment decline beyond which no more increases in average salary can occur.
Increases in Enrolment
Static Enrolment
Declines in Enrolment

D.S.T.
March, 1978

VI. EFFECT OF VARIOUS ENROLMENT PROJECTIONS ON AVERAGE SALARY OF TEACHERS

The simulations in this section explore the probable effect of enrolment projections other than the standard Metro enrolment projection on the average salary of teachers.

VI. - EXHIBIT 1,2--This analysis is based on the standard Metro enrolment projection adjusted in the latter years by the O.I.S.E. projection.

VI. - EXHIBIT 3,4--This analysis is based on the current Metro enrolment projected on the basis of the Ministry of Education's projected rate of enrolment decline for the entire Province of Ontario.

VI. - EXHIBIT 5,6--Graph of projected average salary change under the standard, O.I.S.E. and Ministry of Education enrolment projections for elementary and secondary schools.

Comments

The timing, duration and magnitude of the impact of declining enrolment on average teacher salary is highly dependent upon the particular enrolment projection used.

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	19448	20000	20469	20854	21177	21390	21539	21635	21680	21594
AVERAGE SALARY NO DECLINING ENROLMENT	19443	19766	20035	20259	20441	20595	20717	20814	20880	20898
AMOUNT OF DIFFERENCE		234	433	595	735	795	822	821	800	696
PERCENTAGE DIFFERENCE	0.0%	1.2%	2.1%	2.9%	3.5%	3.7%	3.8%	3.8%	3.7%	3.2%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	2.8%	5.2%	7.2%	8.9%	10.0%	10.8%	11.2%	11.5%	11.0%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	9865	9523	9179	8845	8521	8280	8097	7904	7748	7655
- RETIRED		70	67	64	62	60	55	55	54	54
- RESIGNED		127	123	120	115	110	106	103	101	99
- LAID OFF		146	154	150	147	71	21	35	1	-51
TOTAL SURPLUS		343	344	334	324	241	183	193	156	92

MODEL VARIABLES

ATTRITION RATE - 2.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 35:65 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1973 TO 1986

VI - EXHIBIT 1 Page 18

Average Salary
O.I.S.E. Enrolment Projection
Elementary

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: SECONDARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	23095	23292	23768	24239	24698	25089	25389	25579	25673	25713
AVERAGE SALARY NO DECLINING ENROLMENT	23095	23292	23552	23775	23961	24111	24238	24345	24424	24474
AMOUNT OF DIFFERENCE			216	464	736	977	1151	1234	1254	1238
PERCENTAGE DIFFERENCE	0.0%	0.0%	0.9%	1.9%	3.0%	3.9%	4.5%	4.8%	4.9%	4.8%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	0.9%	2.9%	5.0%	6.9%	8.6%	9.9%	10.8%	11.2%	11.3%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	8593	8688	8497	8267	7993	7717	7453	7246	7080	6929
- RETIRED		50	52	51	49	48	46	45	42	42
- RESIGNED		121	121	119	116	111	107	104	99	97
- LAID OFF		-266	18	50	104	122	111	58	25	12
TOTAL SURPLUS		-95	191	230	269	281	264	207	166	151

MODEL VARIABLES

ATTRITION RATE - 2.0% CONSTANT 1973 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 30:70 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1973 TO 1986

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	19448	19964	20371	20652	20816	20948	21064	21164	21183	21121
AVERAGE SALARY NO DECLINING ENROLMENT	19448	19771	20042	20263	20437	20575	20679	20761	20810	20834
AMOUNT OF DIFFERENCE		193	329	389	379	373	385	402	373	287
PERCENTAGE DIFFERENCE	0.0%	1.0%	1.6%	1.9%	1.8%	1.8%	1.8%	1.9%	1.8%	1.4%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	2.7%	4.7%	6.2%	7.0%	7.7%	8.3%	8.8%	8.9%	8.6%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	9366	9606	9426	9322	9282	9235	9165	9079	9025	9017
- RETIRED		67	66	65	65	65	64	64	63	63
- RESIGNED		125	123	121	121	120	119	118	117	117
- LAID OFF		53	-9	-32	-145	-133	-113	-95	-126	-172
TOTAL SURPLUS		260	180	104	40	47	70	86	54	3

MODEL VARIABLES

ATTRITION RATE - 2.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 35:65 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WPT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

Average Salary
Ministry of Education Enrolment
Projection for Entire Province
Applied to 1977 Metro
Enrolment
-Elementary

VI - EXHIBIT 3

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: SECONDARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	23095	23411	23829	24371	24829	25226	25439	25453	25335	25162
AVERAGE SALARY NO DECLINING ENROLMENT	23095	23396	23651	23873	24060	24207	24325	24423	24480	24507
AMOUNT OF DIFFERENCE		15	173	497	769	1019	1113	1030	854	655
PERCENTAGE DIFFERENCE	0.0%	0.1%	0.7%	2.0%	3.1%	4.0%	4.4%	4.0%	3.4%	2.6%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	1.4%	3.2%	5.5%	7.5%	9.2%	10.1%	10.2%	9.7%	8.9%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	3593	3579	3438	3147	2966	2750	2577	2517	2505	2505
- RETIRED		51	51	49	47	45	44	44	44	44
- RESIGNED		121	118	114	110	106	104	102	102	102
- LAID OFF		-158	-23	123	124	155	25	-86	-134	-146
TOTAL SURPLUS		14	141	291	281	316	173	60	12	

MODEL VARIABLES

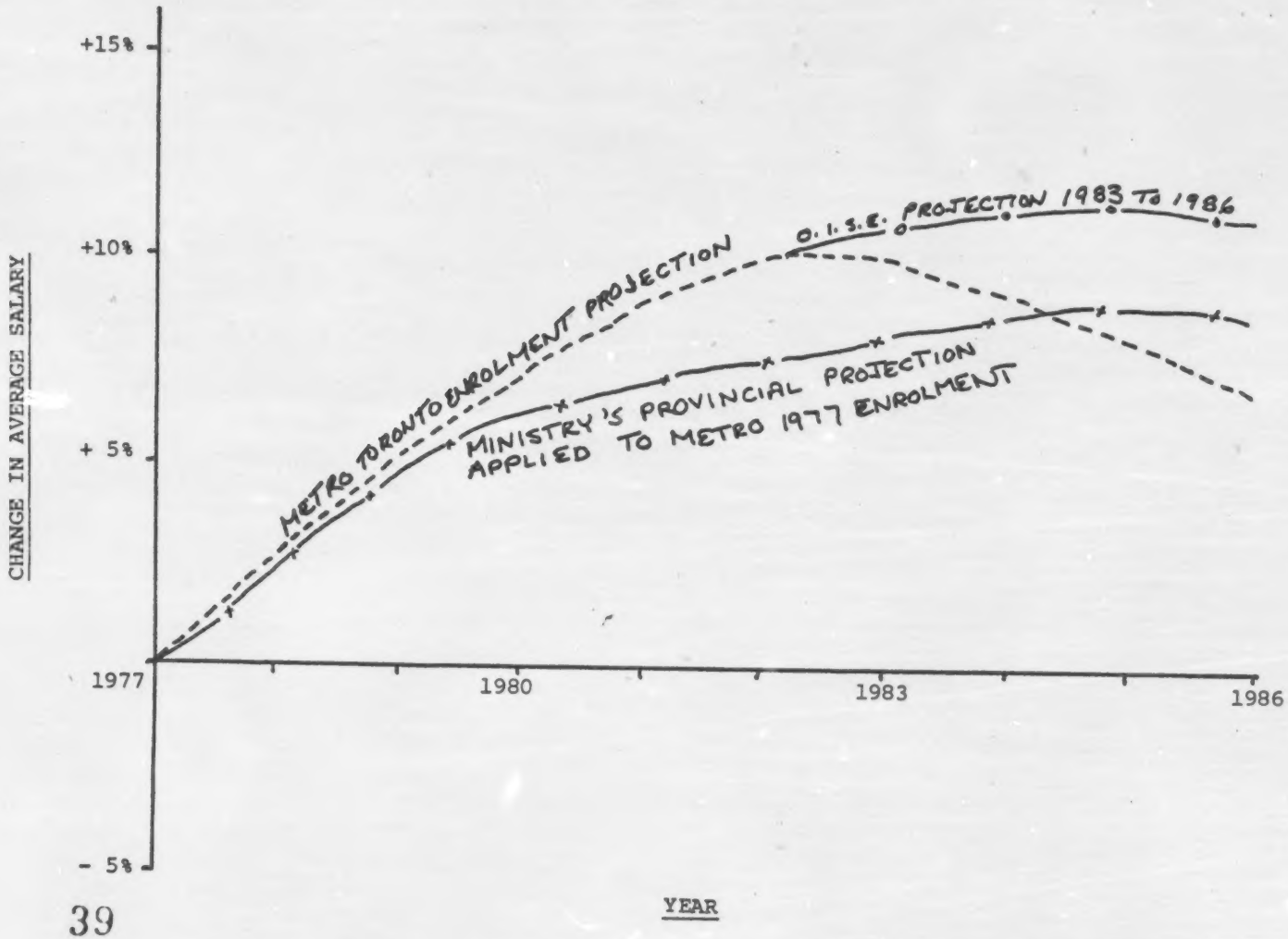
ATTRITION RATE - 2.0% CONSTANT 1973 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 30:70 CONSTANT 1973 TO 1986
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1973 TO 1986

Average Salary
Ministry of Education Enrolment
Projection for Entire Province
Applied to 1977 Metro Enrolment
- Secondary

PROJECTED AVERAGE SALARY CHANGE FROM 1977

BASE AVERAGE SALARY VERSUS TIME

ELEMENTARY - STANDARD, O.I.S.E. PROJECTION, MINISTRY PROJECTION



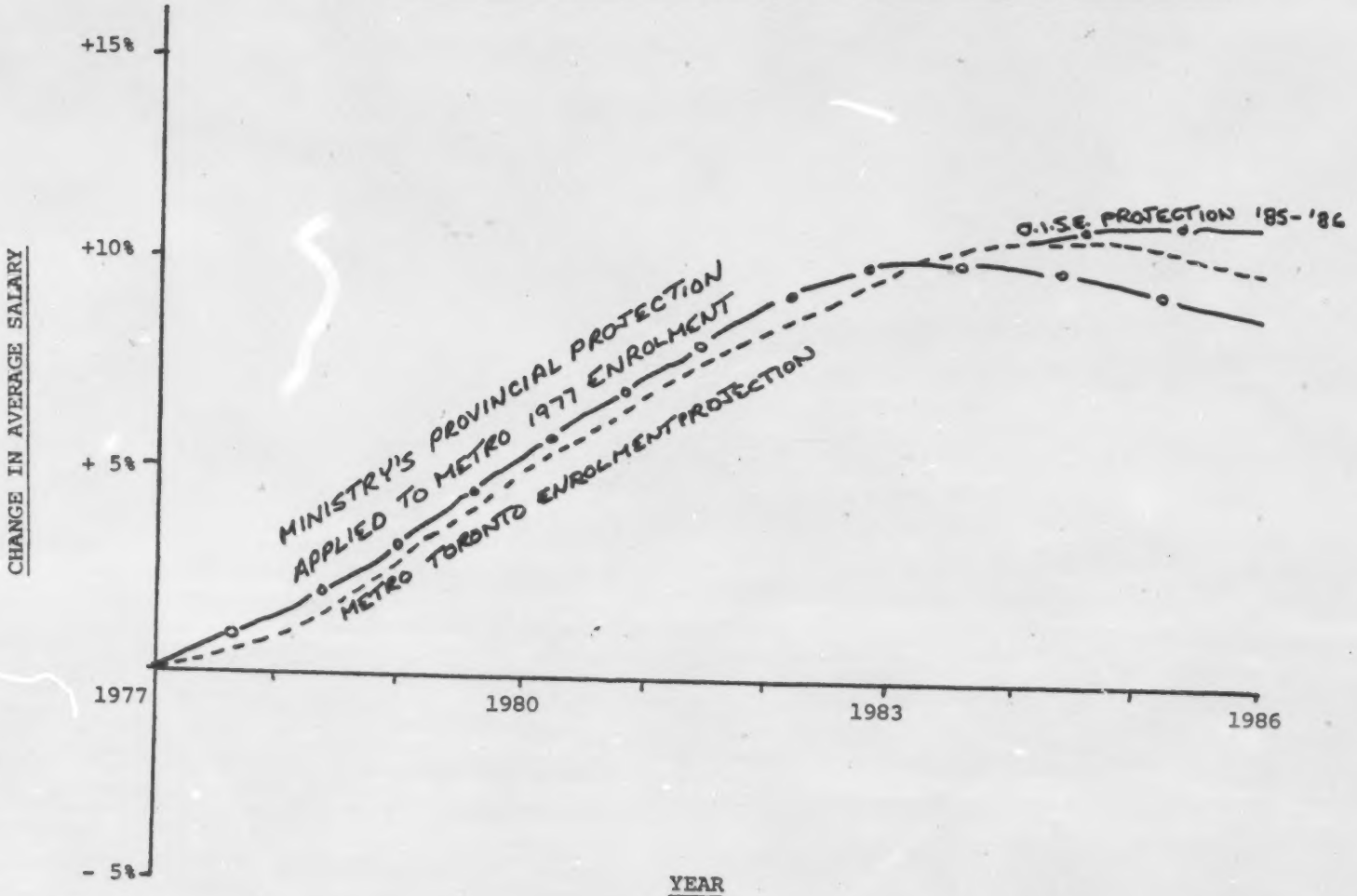
VI - EXHIBIT 5

Average Salary Change
vs. Time
Elementary

PROJECTED AVERAGE SALARY CHANGE FROM 1977

BASE AVERAGE SALARY VERSUS TIME

SECONDARY - STANDARD, O.I.S.E. PROJECTION, MINISTRY PROJECTION



VI - EXHIBIT 6

Average Salary Change
vs. Time
Secondary

VII. EFFECT OF VARIOUS RATES OF ATTRITION ON PROJECTED AVERAGE SALARIES OF TEACHERS

The simulations in this section examine the probable effect of attrition rates on projected average salaries of teachers using the standard Metro enrolment projection.

V. - EXHIBITS 1,2,3,4--This analysis (standard run) is based on a 2% attrition rate throughout the term of the projection with resignations representing 65% of the attrition and retirements 35% each year in the elementary panel. Resignations represent 70% of the attrition and retirements 30% each year in the secondary panel.

VII. - EXHIBITS 1,2 --This analysis is based on a 1% attrition rate throughout the term of the projection with resignations representing 65% and retirements 35% each year in elementary and 70% and 30% respectively in secondary.

VII. - EXHIBITS 3,4 --This analysis is based on an attrition rate of 3% throughout the term of the projection with resignations representing 65% and retirements 35% each year in elementary and 70% and 30% respectively in secondary.

VII. - EXHIBITS 5,6 --This analysis is based on the attrition rate moving from 2% in 1978 to 1% in 1982 and remaining constant for the balance of the projection with resignations representing 65% and retirements 35% each year in the elementary school panel and resignations representing 70% and retirements 30% each year in the secondary panel.

VII. - EXHIBITS 7,8 --This analysis is based on an attrition rate of 2% in 1978 declining to 1% in 1982 and held constant for the balance of the projection. In the elementary panel, resignations represent 65% and the retirements 35% in

VII. - EXHIBITS 7,8 (Cont'd.)

1978, declining to resignations representing 25% and retirements 75% in 1982 with the balance of the projection remaining at the latter proportionment. In secondary schools, resignations represent 70% and retirements 30% in 1978 declining to resignations representing 40% and retirements representing 60% in 1982 remaining constant at the latter proportionment for the balance of the projection.

Comments

(1) Attrition rates up to 3% irrespective of the split between resignations and retirements appear to have a minimal effect on projected average salaries.

(2) The impact of attrition at a rate of 3% versus 1% appears to have a greater impact on projected average salaries in the next ten years in the secondary school panel than in the elementary school panel.

The graphs on VII. - EXHIBITS 9,10 demonstrate the above.

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	19448	20046	20541	20942	21210	21400	21474	21347	21149	20955
AVERAGE SALARY NO DECLINING ENROLMENT	19448	19349	20190	20482	20721	20921	21077	21132	21120	21052
AMOUNT OF DIFFERENCE		196	350	460	488	479	397	214	29	-95
PERCENTAGE DIFFERENCE	0.0%	1.0%	1.7%	2.2%	2.3%	2.2%	1.9%	1.0%	0.1%	-0.5%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	3.1%	5.6%	7.7%	9.1%	10.0%	10.4%	9.8%	8.7%	7.8%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	9866	9523	9179	8845	8521	8280	8215	8289	8402	8530
- RETIRED		33	32	31	30	29	29	29	29	30
- RESIGNED		62	60	57	55	54	53	54	55	55
- LAID OFF		248	252	246	239	158	-17	-157	-197	-213
TOTAL SURPLUS		343	344	334	324	241	65	-74	-113	-123

MODEL VARIABLES

ATTRITION RATE - 1.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 35:65 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WPT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

VII - EXHIBIT 1
1% Attrition
Elementary

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: SECONDARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	23095	23385	23942	24477	24953	25299	25538	25654	25654	25575
AVERAGE SALARY NO DECLINING ENROLMENT	23095	23385	23732	24041	24299	24506	24672	24808	24897	24948
AMOUNT OF DIFFERENCE			209	436	653	793	866	845	756	627
PERCENTAGE DIFFERENCE	0.0%	0.0%	0.9%	1.8%	2.6%	3.1%	3.4%	3.3%	3.0%	2.5%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	1.3%	3.7%	6.0%	8.0%	9.5%	10.6%	11.1%	11.1%	10.7%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	8593	8583	8497	8267	7998	7717	7453	7246	7141	7124
- RETIRED		26	26	25	24	23	23	22	21	21
- RESIGNED		61	59	58	56	54	52	50	50	50
- LAID OFF		-182	106	147	189	204	189	135	34	-54
TOTAL SURPLUS		-95	191	230	269	281	264	207	105	17

MODEL VARIABLES

ATTRITION RATE - 1.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 30:70 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

VII - EXHIBIT 2
1% Attrition
Secondary

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	19448	19954	20402	20734	21095	21331	21314	21105	20833	20539
AVERAGE SALARY NO DECLINING ENROLMENT	19448	19693	19895	20063	20200	20320	20414	20429	20393	20315
AMOUNT OF DIFFERENCE		260	507	721	895	1011	900	676	440	224
PERCENTAGE DIFFERENCE	0.0%	1.3%	2.5%	3.5%	4.2%	4.7%	4.2%	3.2%	2.1%	1.1%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	2.6%	4.9%	6.9%	8.5%	9.7%	9.6%	8.5%	7.1%	5.5%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	9366	9523	9179	8845	8521	8280	8215	8239	8402	8530
- RETIRED		100	96	93	89	87	86	87	88	90
- RESIGNED		137	179	172	167	161	160	162	164	165
- LAID OFF		56	69	69	68	-7	-131	-323	-355	-333
TOTAL SURPLUS		343	344	334	324	241	65	-74	-113	-128

MODEL VARIABLES

ATTRITION RATE - 3.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 35:65 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

VII - EXHIBIT 3
3% Attrition
Elementary

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: SECONDARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	23095	23192	23580	23980	24397	24772	25075	25278	25260	25057
AVERAGE SALARY NO DECLINING ENROLMENT	23095	23192	23366	23513	23637	23736	23818	23393	23942	23972
AMOUNT OF DIFFERENCE			213	467	759	1035	1256	1385	1313	1035
PERCENTAGE DIFFERENCE	0.0%	0.0%	0.9%	1.9%	3.1%	4.2%	5.0%	5.5%	5.2%	4.3%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	0.4%	2.1%	3.8%	5.6%	7.3%	8.6%	9.5%	9.4%	8.5%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	8593	8633	8497	8267	7993	7717	7453	7245	7141	7124
- RETIRED		78	76	74	72	69	67	65	64	64
- RESIGNED		182	173	174	168	163	157	152	150	150
- LAID OFF		-355	-53	-18	29	49	40	-10	-109	-197
TOTAL SURPLUS		-95	191	230	269	281	264	207	105	17

VII - EXHIBIT 4
3% Attrition
Secondary

MODEL VARIABLES

ATTRITION RATE - 3.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 30:70 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	19448	20000	20476	20832	21190	21384	21483	21383	21209	21014
AVERAGE SALARY NO DECLINING ENROLMENT	19448	19766	20053	20315	20545	20764	20942	21023	21033	20983
AMOUNT OF DIFFERENCE		234	422	566	644	620	540	359	175	25
PERCENTAGE DIFFERENCE	0.0%	1.2%	2.1%	2.7%	3.0%	2.9%	2.5%	1.7%	0.8%	0.1%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	2.8%	5.3%	7.4%	9.0%	10.0%	10.5%	9.9%	9.1%	3.1%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	9366	9523	9179	8345	8521	8230	8215	8239	8402	8530
- RETIRED		70	58	43	39	30	29	29	29	29
- RESIGNED		127	109	90	72	55	54	53	54	55
- LAID OFF		146	177	196	213	156	-18	-156	-196	-212
TOTAL SURPLUS		343	344	334	324	241	65	-74	-113	-128

MODEL VARIABLES

ATTRITION RATE - 2% - 1% 1978 TO 82/CONSTANT 83 TO 86
RATIO OF RETIREMENTS TO RESIGNATIONS - 35:65 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WPT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

VII - EXHIBIT 5
2% to 1% Attrition
Elementary

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: SECONDARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	23095	23292	23892	24399	24835	25270	25513	25665	25693	25441
AVERAGE SALARY NO DECLINING ENROLMENT	23095	23292	23573	23843	24096	24322	24507	24662	24776	24746
AMOUNT OF DIFFERENCE			319	556	738	947	1005	1003	921	695
PERCENTAGE DIFFERENCE	0.0%	0.0%	1.3%	2.3%	3.2%	3.8%	3.9%	3.9%	3.6%	2.7%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	0.9%	3.5%	5.6%	7.7%	9.4%	10.5%	11.1%	11.3%	10.2%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	8593	8638	8397	8167	7893	7617	7353	7145	7041	7124
- RETIRED		50	46	38	31	24	23	22	22	21
- RESIGNED		121	106	89	72	56	54	53	50	50
- LAID OFF		-266	139	103	166	201	137	132	33	-154
TOTAL SURPLUS		-95	291	230	269	281	264	207	105	-83

MODEL VARIABLES

ATTRITION RATE - 2% - 1% 1978 TO 82/CONSTANT 83 TO 86
RATIO OF RETIREMENTS TO RESIGNATIONS - 30:70 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	19448	20000	20470	20868	21170	21359	21453	21353	21179	20985
AVERAGE SALARY NO DECLINING ENROLMENT	19448	19766	20047	20302	20528	20742	20919	21002	21019	20983
AMOUNT OF DIFFERENCE		234	422	565	641	616	534	351	159	1
PERCENTAGE DIFFERENCE	0.0%	1.2%	2.1%	2.7%	3.0%	2.9%	2.5%	1.6%	0.8%	0.0%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	2.8%	5.3%	7.3%	8.9%	9.8%	10.3%	9.8%	8.9%	7.9%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	9866	9523	9179	8843	8521	8230	8215	8289	8402	8530
- RETIRED		70	75	76	72	64	62	62	62	63
- RESIGNED		127	92	62	39	21	21	20	21	21
- LAID OFF		145	177	196	213	156	-18	-156	-196	-212
TOTAL SURPLUS		343	344	334	324	241	65	-74	-113	-128

MODEL VARIABLES

ATTRITION RATE - 2% - 1% 1978 TO 1982 / 1% 83 TO 86
RATIO OF RETIREMENTS TO RESIGNATIONS - 35:65-75:25 78 TO 82 / 75:25 TO 86
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

VII - EXHIBIT 7

2% to 1% Attrition
Apportionment Varied
Elementary

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: SECONDARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	23095	23292	23785	24291	24776	25184	25453	25606	25657	25565
AVERAGE SALARY NO DECLINING ENROLMENT	23095	23292	23571	23837	24074	24293	24473	24525	24737	24810
AMOUNT OF DIFFERENCE			213	453	701	891	979	930	920	754
PERCENTAGE DIFFERENCE	0.0%	0.0%	0.9%	1.9%	2.8%	3.5%	3.8%	3.8%	3.6%	3.0%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	0.9%	3.0%	5.2%	7.3%	9.0%	10.2%	10.9%	11.1%	10.7%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	8593	8683	8497	8267	7998	7717	7453	7245	7141	7124
- RETIRED		50	57	57	54	48	45	45	43	43
- RESIGNED		121	95	70	49	32	31	30	29	23
- LAID OFF		-265	30	103	165	201	187	132	33	-54
TOTAL SURPLUS		-95	191	230	269	281	264	207	105	17

MODEL VARIABLES

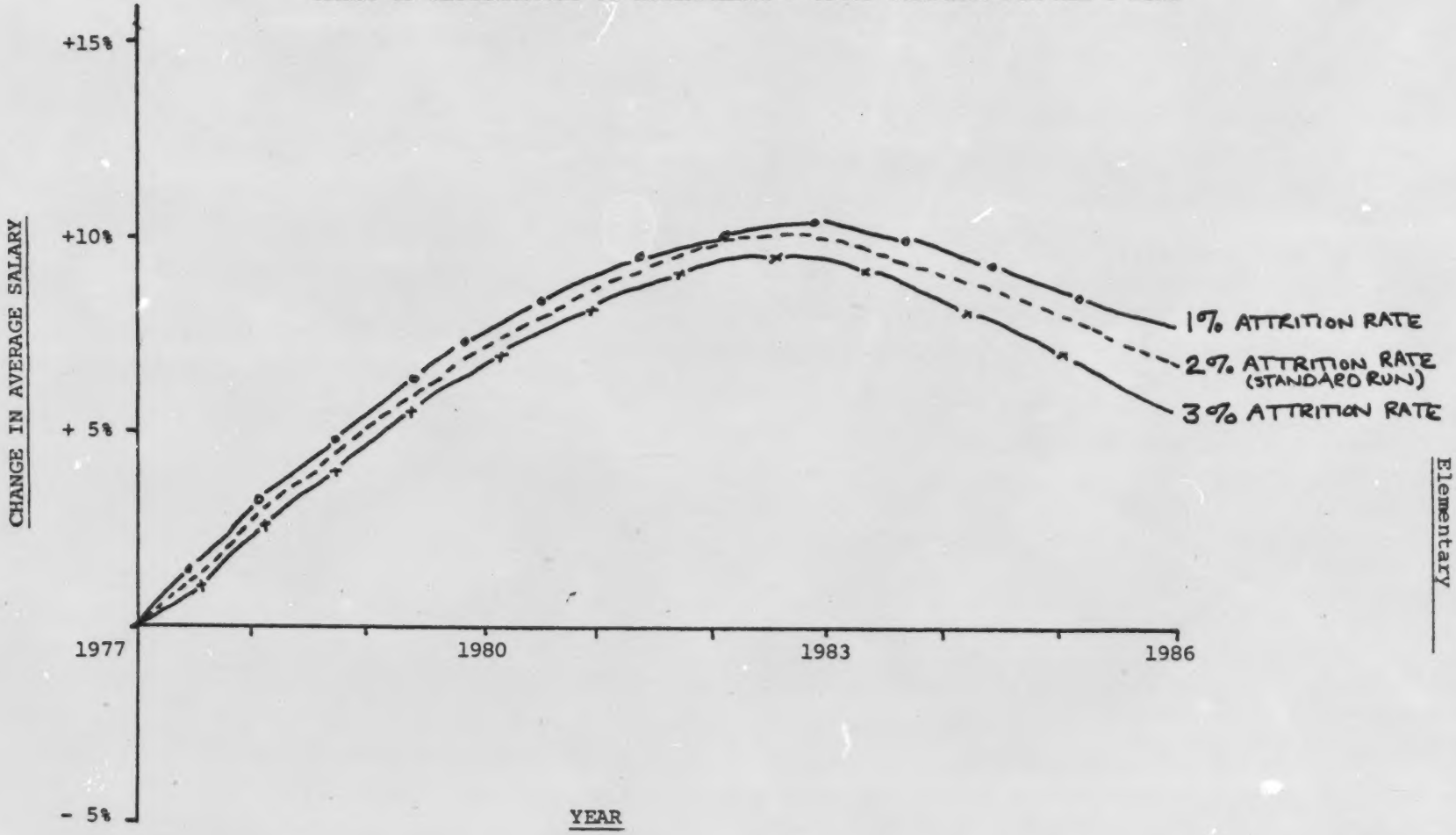
ATTRITION RATE - 2% - 1% 1978 TO 1982 / 1% 83 TO 86
RATIO OF RETIREMENTS TO RESIGNATIONS - 30:70-60:40 78 TO 82/CONSTANT TO 86
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

PROJECTED AVERAGE SALARY CHANGE FROM 1977

BASE AVERAGE SALARY VERSUS TIME

ELEMENTARY - 1%, 2%, 3% ATTRITION RATE

RATIO OF RESIGNATIONS TO RETIREMENTS = 65:35 CONSTANT FOR ALL 3 RUNS



VII - EXHIBIT 9

Attrition Rates

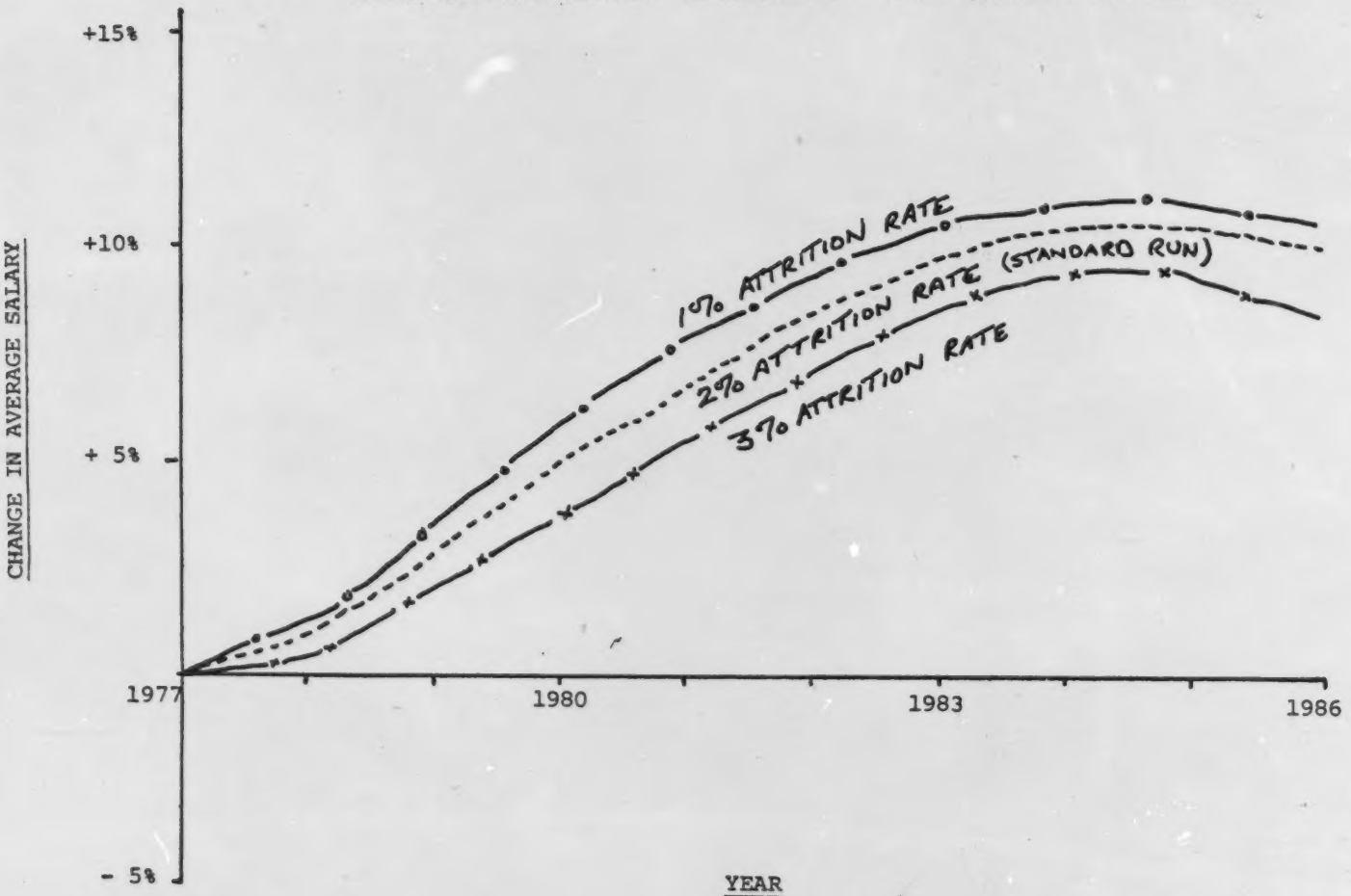
Elementary

PROJECTED AVERAGE SALARY CHANGE FROM 1977

BASE AVERAGE SALARY VERSUS TIME

SECONDARY - 1%, 2%, 3% ATTRITION RATE

RATIO OF RESIGNATIONS: RETIREMENTS - 70:30 CONSTANT FOR ALL RUNS



VII - EXHIBIT 10 Page 35

Attrition Rates
Secondary

VIII. EFFECT OF CHANGES IN PUPIL/TEACHER RATIO ON PROJECTED AVERAGE SALARY OF TEACHERS

The simulations in this section explore the probable effect of changes in pupil/teacher ratio on average salary of teachers using the standard Metro enrolment projection.

V. - EXHIBITS 1,2,3,4--This analysis (standard run) is based on the 1977 pupil/teacher ratio in elementary and secondary schools remaining constant throughout the term of the projection.

VIII. - EXHIBITS 1,2 --This analysis is based on a reducation in the standard pupil/teacher ratio of one.

VIII. - EXHIBITS 3,4 --This analysis is based on an increase of one in the standard pupil/teacher ratio.

Comments

(1) The impact on average salary of a change in the standard pupil/teacher ratio is greatest in the first year of implementation, and over a period of time in a declining enrolment situation tends to diminish.

The graphs on VIII. - EXHIBITS 5,6 demonstrate the above.

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	19448	19649	20209	20694	21058	21315	21388	21274	21035	20351
AVERAGE SALARY NO DECLINING ENROLMENT	19448	19649	19926	20160	20357	20526	20656	20695	20665	20591
AMOUNT OF DIFFERENCE			282	534	700	788	732	573	419	259
PERCENTAGE DIFFERENCE	0.0%	0.0%	1.4%	2.6%	3.3%	3.7%	3.4%	2.7%	2.0%	1.2%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	1.0%	3.9%	6.4%	8.3%	9.6%	10.0%	9.4%	8.4%	7.2%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	9366	10014	9643	9300	8964	8713	8645	8719	8838	8971
- RETIRED		70	68	65	63	61	61	61	62	63
- RESIGNED		130	125	121	116	113	112	113	115	117
- LAID OFF		-348	173	162	157	77	-106	-247	-295	-313
TOTAL SURPLUS		-148	366	348	336	251	67	-73	-119	-133

MODEL VARIABLES

ATTRITION RATE - 2.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 35:65 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - STANDARD -1 PUPIL PER TEACHER
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

VIII - EXHIBIT 1
Minus 1 PTR
Elementary
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METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: SECONDARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	23095	22684	23134	23583	24184	24634	25002	25271	25366	25274
AVERAGE SALARY NO DECLINING ENROLMENT	23095	22684	22934	23253	23505	23720	23907	24073	24204	24299
AMOUNT OF DIFFERENCE			199	429	679	913	1095	1197	1162	975
PERCENTAGE DIFFERENCE	0.0%	0.0%	0.9%	1.8%	2.8%	3.7%	4.4%	4.7%	4.6%	3.9%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	-1.8%	0.4%	2.5%	4.7%	6.7%	8.3%	9.4%	9.3%	9.4%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	8593	9272	9071	8830	8548	8249	7973	7757	7647	7626
- RETIRED		56	54	53	51	49	48	47	46	46
- RESIGNED		129	127	124	120	116	112	108	107	107
- LAID OFF		-354	20	64	111	134	116	61	-43	-132
TOTAL SURPLUS		-679	201	241	232	299	276	216	110	21

MODEL VARIABLES

ATTRITION RATE - 2.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 30:70 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - STANDARD -1 PUPIL PER TEACHER
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	19448	20216	20643	20990	21245	21426	21414	21207	20934	20683
AVERAGE SALARY NO DECLINING ENROLMENT	19448	19779	20059	20294	20487	20647	20768	20795	20761	20677
AMOUNT OF DIFFERENCE		436	539	696	758	779	645	411	173	5
PERCENTAGE DIFFERENCE	0.0%	2.2%	2.9%	3.3%	3.6%	3.6%	3.0%	1.9%	0.8%	0.0%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	3.9%	5.2%	7.9%	9.2%	10.2%	10.1%	9.0%	7.6%	6.3%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	9866	9084	8754	8432	8121	7839	7826	7893	8006	8129
- RETIRED		64	61	59	57	55	55	55	56	57
- RESIGNED		118	114	110	105	103	102	103	104	106
- LAID OFF		600	155	153	149	74	-94	-230	-268	-286
TOTAL SURPLUS		782	330	322	311	232	63	-72	-108	-123

MODEL VARIABLES

ATTRITION RATE - 2.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 35:65 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - STANDARD +1 PUPIL PER TEACHER
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: SECONDARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	23095	23855	24300	24724	25093	25392	25597	25700	25560	25448
AVERAGE SALARY NO DECLINING ENROLMENT	23095	23406	23671	23901	24092	24245	24368	24472	24538	24572
AMOUNT OF DIFFERENCE		449	629	823	1006	1146	1229	1227	1122	876
PERCENTAGE DIFFERENCE	0.0%	1.9%	2.6%	3.3%	4.0%	4.5%	4.8%	4.8%	4.4%	3.4%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	3.3%	5.2%	7.1%	8.7%	9.9%	10.8%	11.3%	11.1%	10.2%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	8593	8173	7992	7773	7516	7249	6997	6799	6699	6636
- RETIRED		49	48	47	45	43	42	41	40	40
- RESIGNED		114	112	103	105	102	98	95	94	94
- LAID OFF		257	21	64	107	122	112	62	-34	-121
TOTAL SURPLUS		420	181	219	257	267	252	198	100	13

MODEL VARIABLES

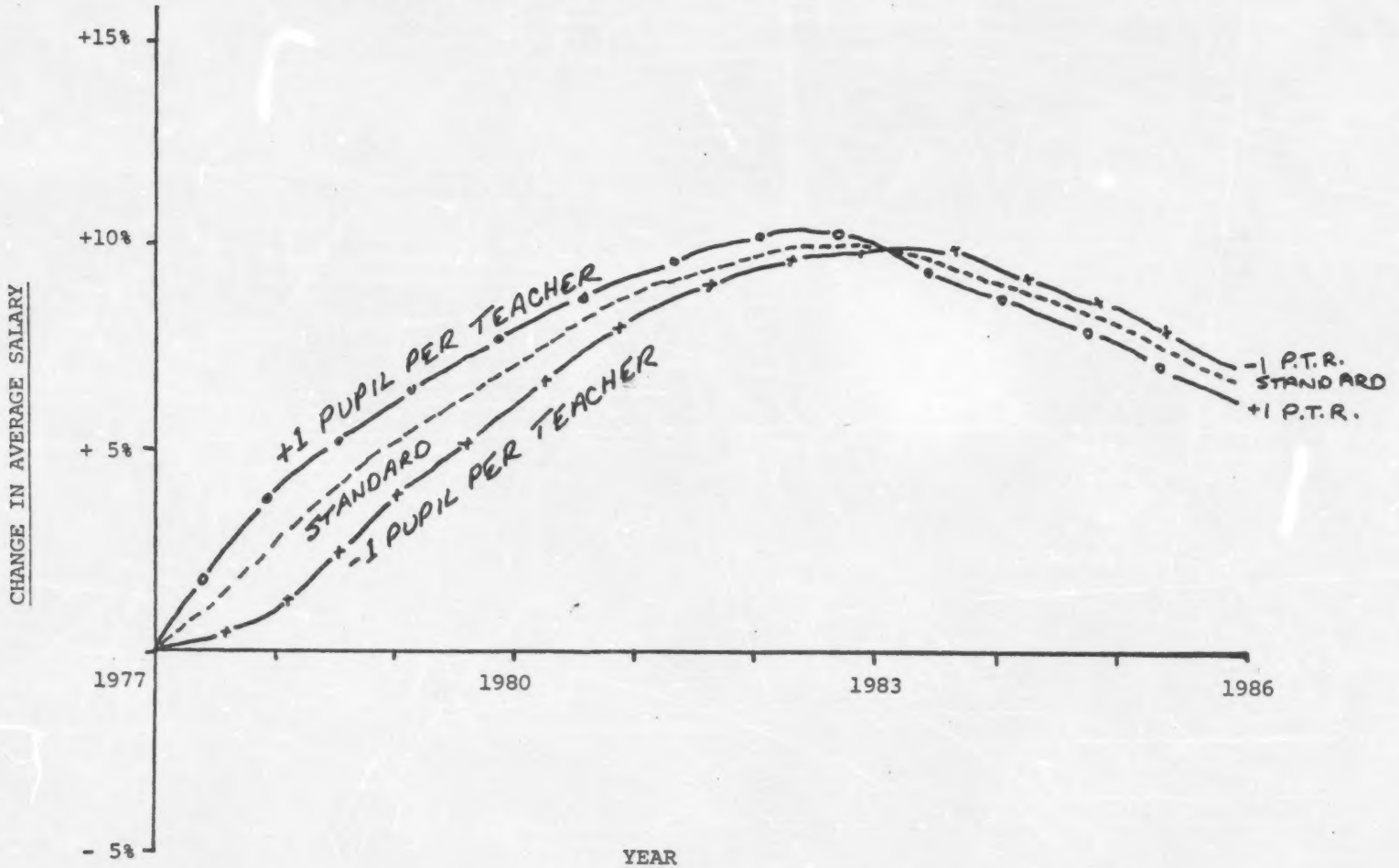
ATTRITION RATE - 2.0% CONSTANT 1973 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 30:70 CONSTANT 1973 TO 1986
PUPIL TEACHER RATIO - STANDARD +1 PUPIL PER TEACHER
DOLLARS USED - CONSTANT UNINFLATED 1973 TO 1986

VIII - EXHIBIT 4
Plus 1 PTR
Secondary

PROJECTED AVERAGE SALARY CHANGE FROM 1977

BASE AVERAGE SALARY VERSUS TIME

ELEMENTARY - STANDARD, +1 P.T.R., -1 P.T.R. (1978 - 1986)



VIII - EXHIBIT 5
Various PTR
Elementary

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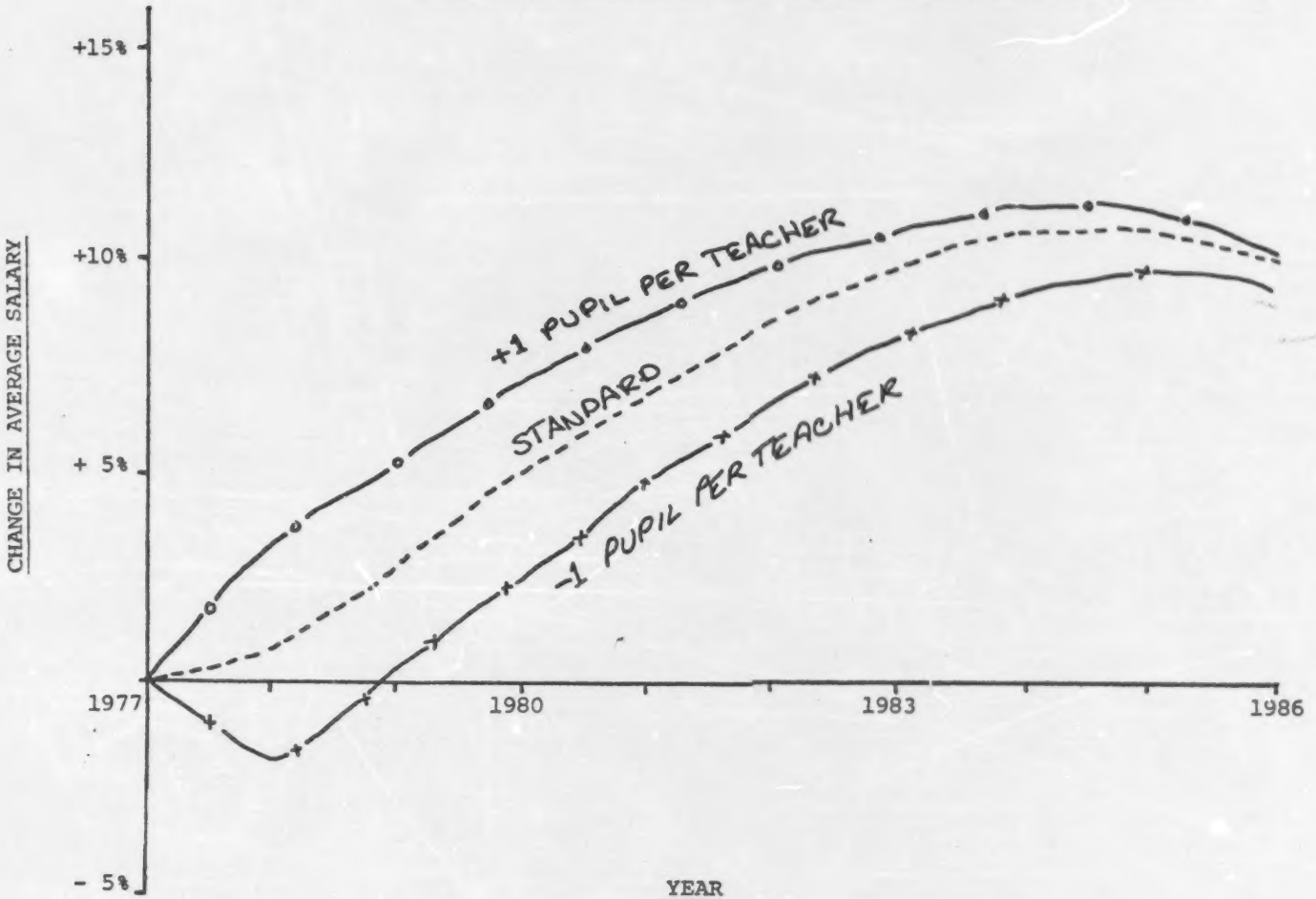
PROJECTED AVERAGE SALARY CHANGE FROM 1977

BASE AVERAGE SALARY VERSUS TIME

SECONDARY - STANDARD, +1 P.T.R., -1 P.T.R. (1978 - 1986)



VIII - EXHIBIT 6

Various PTR
Secondary

IX. COMPARISON OF A "YOUNG" BOARD VERSUS AN "OLD" BOARD WITH RESPECT TO PROJECTED AVERAGE SALARY OF TEACHERS

The simulations in this section provide a comparison of a younger than average board versus an older than average board with respect to projected average salary of teachers. In this part of the study, the Board of Education for the Borough of East York was selected to represent a "young" board. It has one of the lowest average salaries for teachers in the base year 1977. The Board of Education for the City of Toronto was selected to represent an "old" board. It has one of the highest average salaries for teachers in the base year 1977. For purposes of these simulations we have assumed that the enrolment decline from the base year would parallel the decline in the standard Metro enrolment projection.

IX. - EXHIBITS 1,2--This analysis is based on the standard M.T.S.B. projected enrolment for the Board of Education for the Borough of East York.

IX. - EXHIBITS 3,4--This analysis is based on the standard M.T.S.B. projected enrolment for the Board of Education for the City of Toronto.

Comments

(1) The average salary for teachers in a school board with a younger, less experienced teaching population is effected more by declining enrolment than a board with an older more experienced teaching staff.

(2) An "old" school board will reach its maximum average salary earlier than a "young" board in a comparable declining enrolment situation.

The graphs on IX. - EXHIBITS 5,6,7,8,9 demonstrate the above.

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: EAST YORK PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	19031	19717	20335	20872	21297	21613	21670	21561	21331	21115
AVERAGE SALARY NO DECLINING ENROLMENT	19031	19460	19867	20231	20533	20730	20953	21011	21004	20904
AMOUNT OF DIFFERENCE		257	468	641	764	932	711	550	376	211
PERCENTAGE DIFFERENCE	0.0%	1.3%	2.3%	3.1%	3.6%	3.9%	3.3%	2.6%	1.8%	1.0%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	3.6%	5.8%	9.7%	11.9%	13.6%	13.9%	13.3%	12.3%	10.9%
DECL. ENROL. STATS										
NUMBER OF TEACHERS										
- TOTAL	425	410	395	381	367	357	356	359	364	370
- RETIRED		3	3	3	3	2	2	2	2	3
- RESIGNED		5	5	5	4	5	5	5	5	4
- LAID OFF		7	7	6	7	3	-6	-10	-12	-13
TOTAL SURPLUS		15	15	14	14	10	1	-3	-5	-6

MODEL VARIABLES

ATTRITION RATE - 2.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 35:65 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: EAST YORK PANEL: SECONDARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	21324	22215	22343	23463	24065	24576	24943	25200	25235	25174
AVERAGE SALARY NO DECLINING ENROLMENT	21824	22215	22630	23008	23331	23618	23839	24007	24100	24138
AMOUNT OF DIFFERENCE			212	454	734	957	1103	1193	1135	1035
PERCENTAGE DIFFERENCE	0.0%	0.0%	0.9%	1.9%	3.1%	3.9%	4.4%	4.7%	4.7%	4.1%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	1.8%	4.7%	7.5%	10.3%	12.6%	14.3%	15.5%	15.9%	15.3%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	304	307	300	292	282	272	263	256	252	251
- RETIRED		2	2	2	2	1	2	1	1	2
- RESIGNED		4	4	4	4	4	3	4	4	3
- LAID OFF		-9	1	2	4	5	4	2	-1	-4
TOTAL SURPLUS		-3	7	8	10	10	9	7	4	1

MODEL VARIABLES

ATTRITION RATE - 2.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 30:70 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

ET [illegible] TORONTO [illegible] BOARD

STATISTICAL ANALYSIS OF S[illegible]S FOR DECLINING ENROLMENT

BOARD: TORONTO PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	19811	20292	20700	21038	21282	21439	21423	21229	20953	20703
AVERAGE SALARY NO DECLINING ENROLMENT	19811	20059	20263	20438	20573	20678	20750	20733	20657	20543
AMOUNT OF DIFFERENCE		233	436	600	708	760	677	495	300	160
PERCENTAGE DIFFERENCE	0.0%	1.2%	2.1%	2.9%	3.3%	3.5%	3.2%	2.3%	1.4%	0.8%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	2.4%	4.5%	6.2%	7.4%	8.2%	8.2%	7.2%	5.3%	4.5%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	2769	2673	2575	2482	2391	2323	2305	2326	2358	2394
- RETIRED		19	18	17	17	16	16	16	17	17
- RESIGNED		34	34	33	31	30	30	31	31	31
- LAID OFF		43	45	44	43	22	-28	-63	-80	-84
TOTAL SURPLUS		96	97	94	91	68	18	-21	-32	-36

MODEL VARIABLES

ATTRITION RATE - 2.0% CONSTANT 1978 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 35:65 CONSTANT 1978 TO 1986
PUPIL TEACHER RATIO - CONSTANT WPT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1978 TO 1986

METROPOLITAN TORONTO SCHOOL BOARD

STATISTICAL ANALYSIS OF SALARIES FOR DECLINING ENROLMENT

BOARD: TORONTO PANEL: SECONDARY

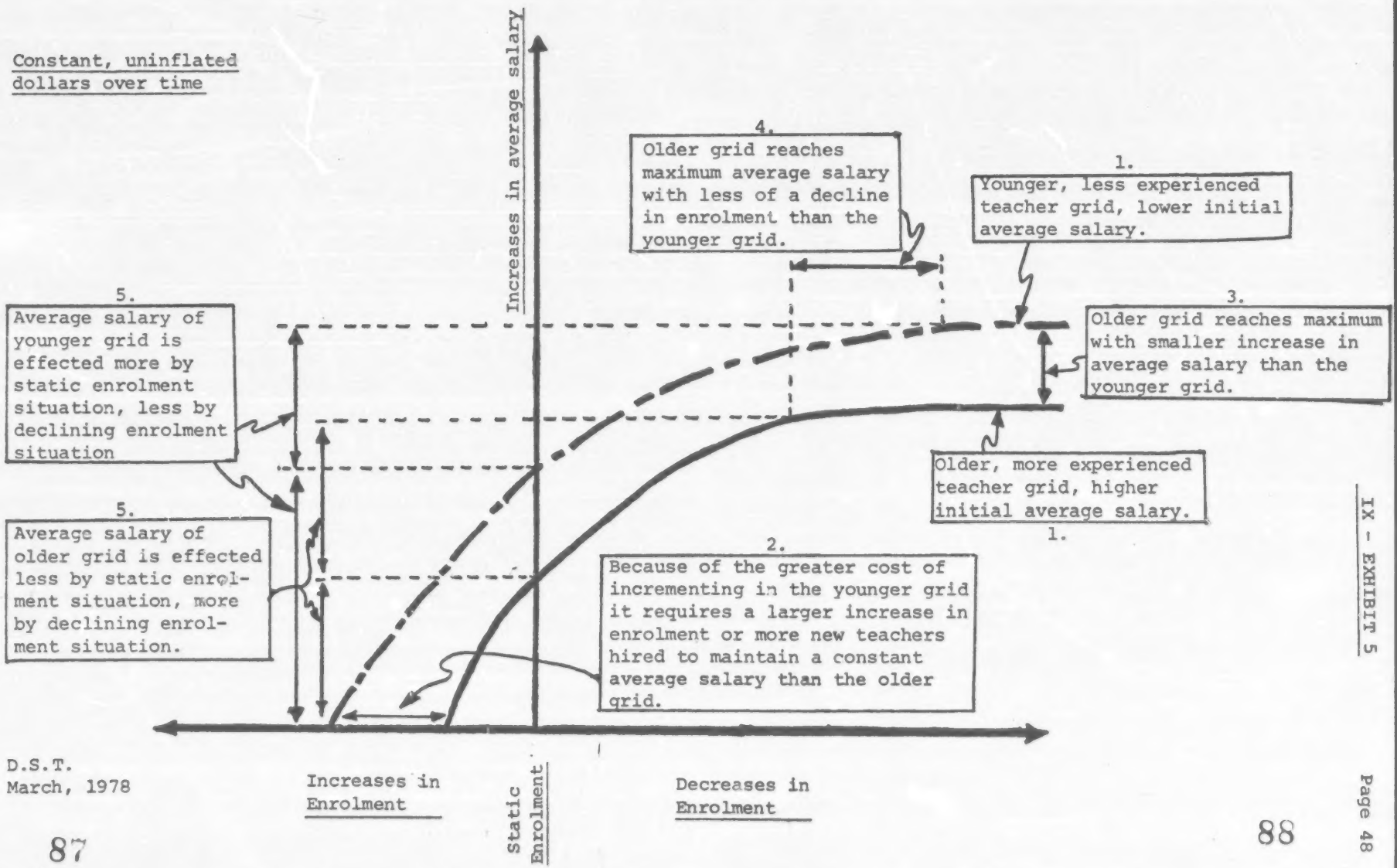
YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
AVERAGE SALARY WITH DECLINING ENROLMENT	23534	23639	24046	24444	24815	25123	25337	25457	25441	25257
AVERAGE SALARY NO DECLINING ENROLMENT	23534	23639	23823	23967	24068	24123	24176	24214	24231	24241
AMOUNT OF DIFFERENCE			223	476	747	994	1161	1242	1209	1016
PERCENTAGE DIFFERENCE	0.0%	0.0%	0.9%	1.9%	3.0%	4.0%	4.6%	4.9%	4.8%	4.0%
PERCENTAGE DIFFERENCE FROM 1977 SALARY	0.0%	0.4%	2.2%	3.9%	5.4%	6.8%	7.7%	8.2%	8.1%	7.3%
DECL. ENROL. STATS										
NUMBER OF TEACHERS - TOTAL	2233	2258	2208	2148	2078	2005	1936	1882	1855	1851
- RETIRED		14	13	13	12	12	12	11	11	11
- RESIGNED		31	31	30	30	28	27	27	26	26
- LAID OFF		-70	6	17	23	33	30	16	-10	-33
TOTAL SURPLUS		-25	50	60	70	73	59	54	27	4

MODEL VARIABLES

ATTRITION RATE - 2.0% CONSTANT 1973 TO 1986
RATIO OF RETIREMENTS TO RESIGNATIONS - 30:70 CONSTANT 1973 TO 1986
PUPIL TEACHER RATIO - CONSTANT WRT VARIABLE TEACHERS
DOLLARS USED - CONSTANT UNINFLATED 1973 TO 1986

THE METROPOLITAN TORONTO SCHOOL BOARD

Graph of Enrolment Changes versus Average Salary Changes over time for different Teacher Grids


Constant, uninflated dollars over time
Increases in average salary
4.
Older grid reaches maximum average salary with less of a decline in enrolment than the younger grid.
1.
Younger, less experienced teacher grid, lower initial average salary.
5.
Average salary of younger grid is effected more by static enrolment situation, less by declining enrolment situation
3.
Older grid reaches maximum with smaller increase in average salary than the younger grid.
Older, more experienced teacher grid, higher initial average salary.
1.
5.
Average salary of older grid is effected less by static enrolment situation, more by declining enrolment situation.
2.
Because of the greater cost of incrementing in the younger grid it requires a larger increase in enrolment or more new teachers hired to maintain a constant average salary than the older grid.
Increases in Enrolment
Static Enrolment
Decreases in Enrolment

D.S.T.
March, 1978

IX - EXHIBIT 5

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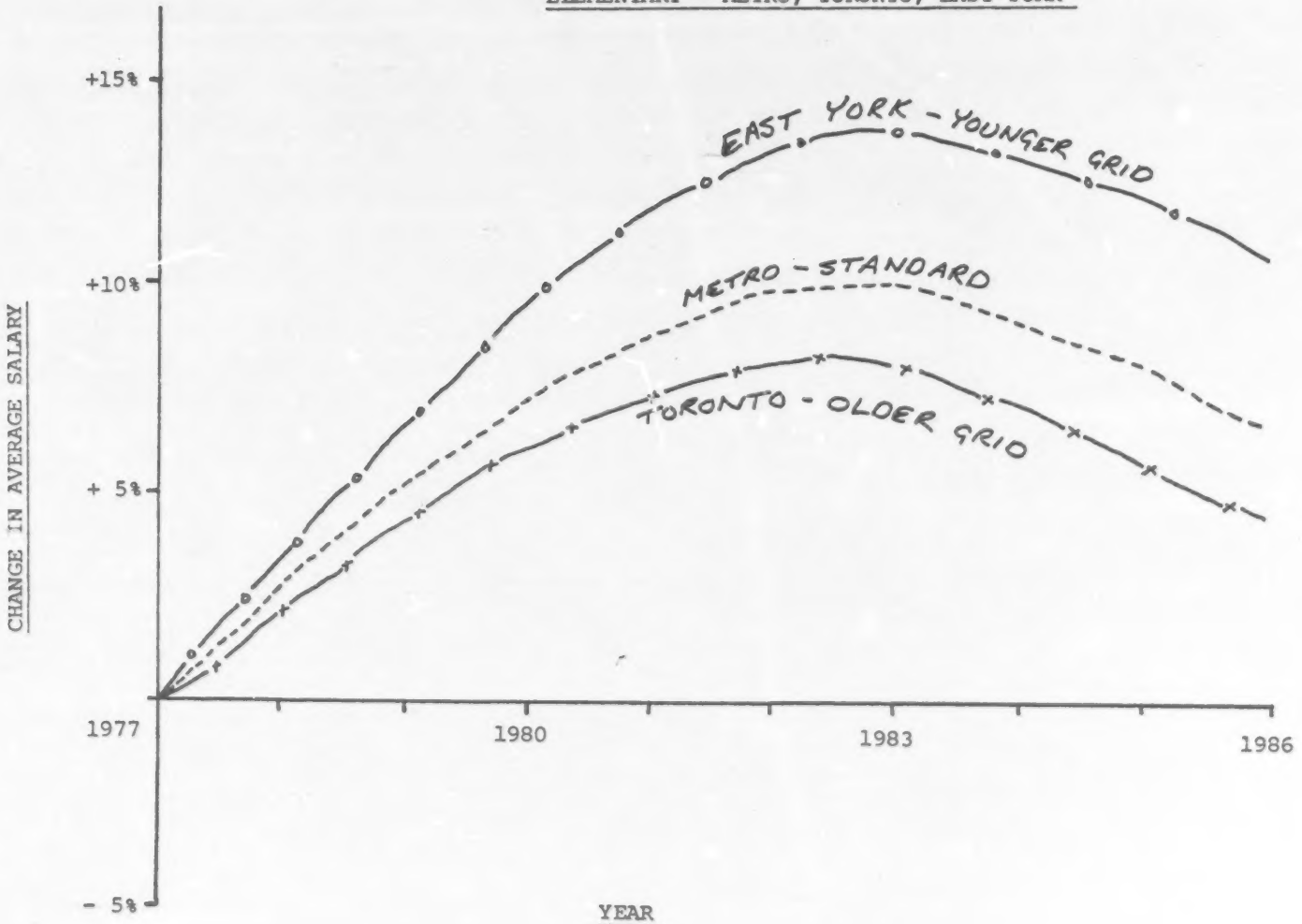
PROJECTED AVERAGE SALARY CHANGE FROM 1977

BASE AVERAGE SALARY VERSUS TIME

ELEMENTARY - METRO, TORONTO, EAST YORK



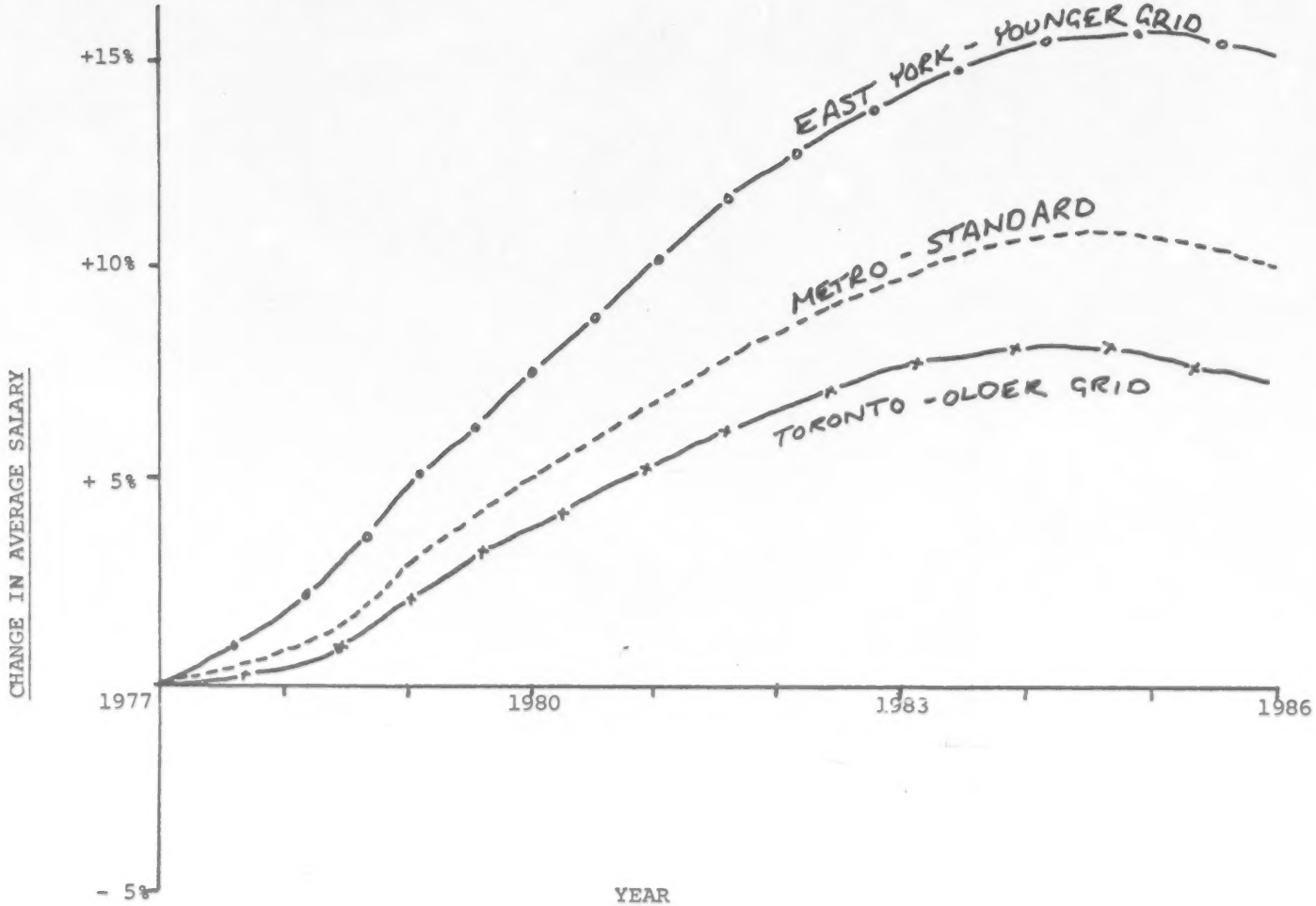
IX - EXHIBIT 6

Average Salary Change
vs. Time
Elementary

PROJECTED AVERAGE SALARY CHANGE FROM 1977

BASE AVERAGE SALARY VERSUS TIME

SECONDARY - METRO, TORONTO, EAST YORK

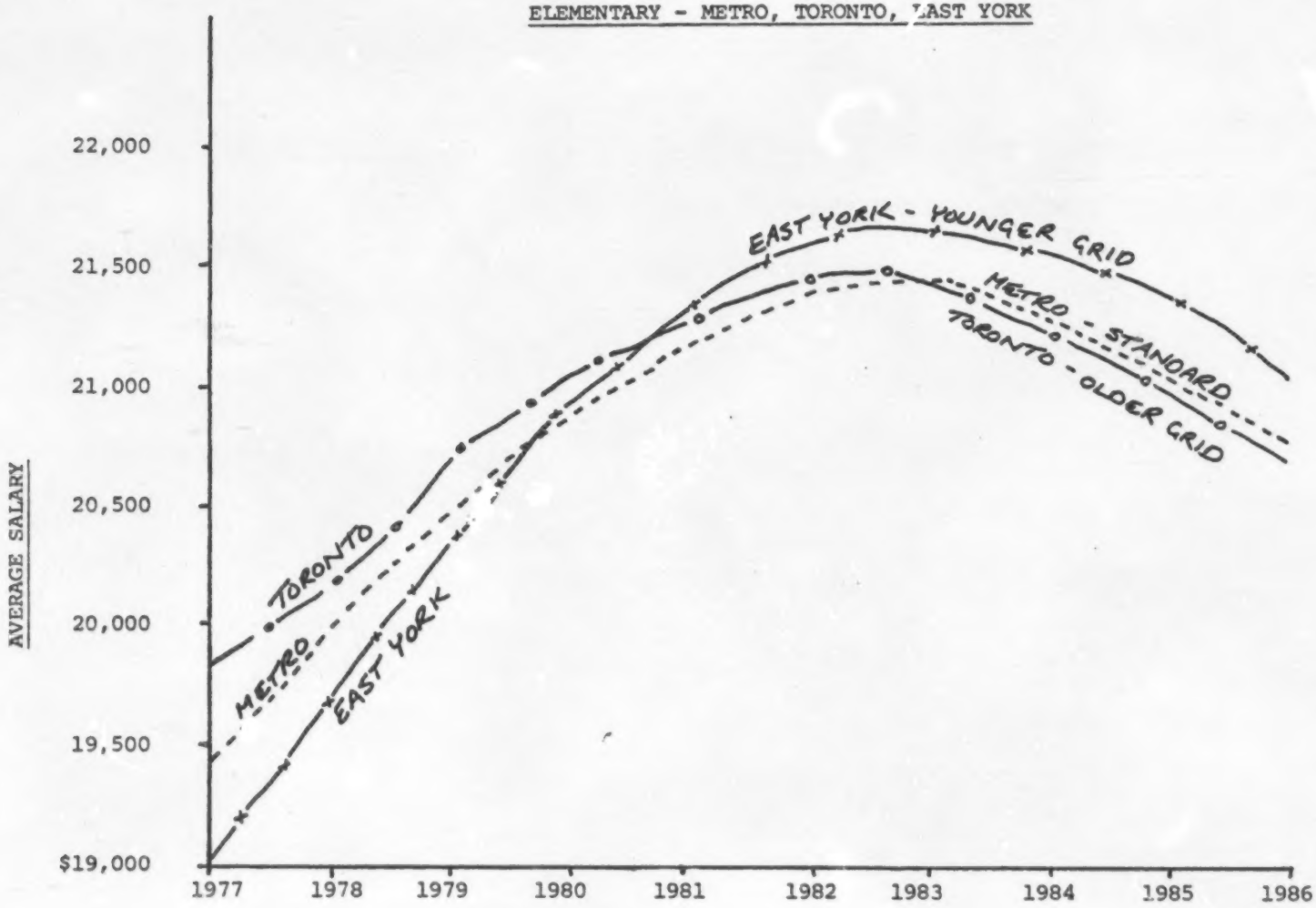


IX - EXHIBIT 7

Average Salary Change
vs. Time
Secondary

PROJECTED AVERAGE SALARY VERSUS TIME 1977 to 1986

ELEMENTARY - METRO, TORONTO, EAST YORK

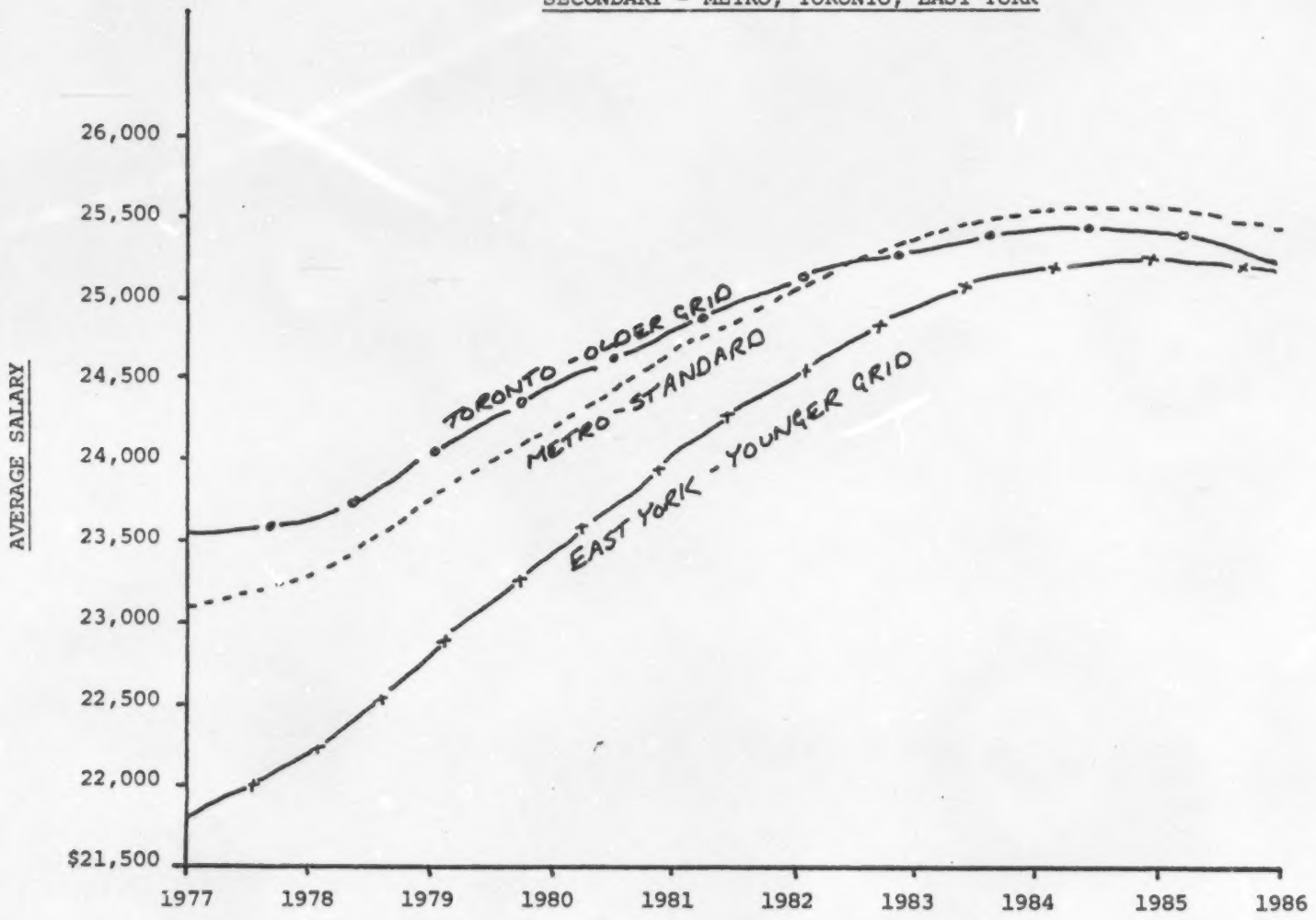


IX - EXHIBIT 8

Average Salary $
vs. Time
Elementary

PROJECTED AVERAGE SALARY VERSUS TIME 1977 TO 1986

SECONDARY - METRO, TORONTO, EAST YORK



IX - EXHIBIT 9

Average Salary $
vs. Time
Secondary

X. EFFECT OF DECLINING ENROLMENT ON TEACHER EXPERIENCE

The analyses in this s ion explore the probable effect of declining enrolment on teacher ence.

X. - EXHIBITS 1,2--These analyses indicate the probable distribution of groupings of teachers by years of experience based on the standard Metro enrolment projection.

Comments

In a period of declining enrolment, the average years of experience of the teaching force will tend to increase. However, at the point in time when lay-offs end and hirings commence, the effect of annual incrementing on average salary will be moderated and depending on the extent of hiring, the average salary and average years of experience may begin to decrease.

The graphs on X. - EXHIBITS 3,4 demonstrate the above.

METROPOLITAN TORONTO SCHOOL BOARD

TEACHER EXPERIENCE ANALYSIS FOR DECLINING ENROLMENT

BOARD: METRO TOTALS PANEL: ELEMENTARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
PERCENTAGE OF TEACHERS										
-WITH 5 OR MORE YEARS OF EXPERIENCE	79.2%	84.0%	90.5%	93.6%	100.0%	100.0%	93.8%	95.9%	92.6%	89.4%
-WITH 10 OR MORE YEARS OF EXPERIENCE	48.0%	55.3%	63.0%	71.6%	78.6%	85.0%	88.1%	90.7%	92.6%	89.4%
-WITH 15 OR MORE YEARS OF EXPERIENCE	24.0%	27.8%	32.3%	37.9%	44.9%	52.0%	58.7%	64.3%	69.6%	72.7%
-WITH 20 OR MORE YEARS OF EXPERIENCE	8.3%	9.1%	10.1%	18.1%	21.2%	24.7%	23.4%	32.2%	36.4%	41.5%

X - EXHIBIT I

Teacher Experience
Elementary

METROPOLITAN TORONTO SCHOOL BOARD

TEACHER EXPERIENCE ANALYSIS FOR DECLINING ENROLMENT

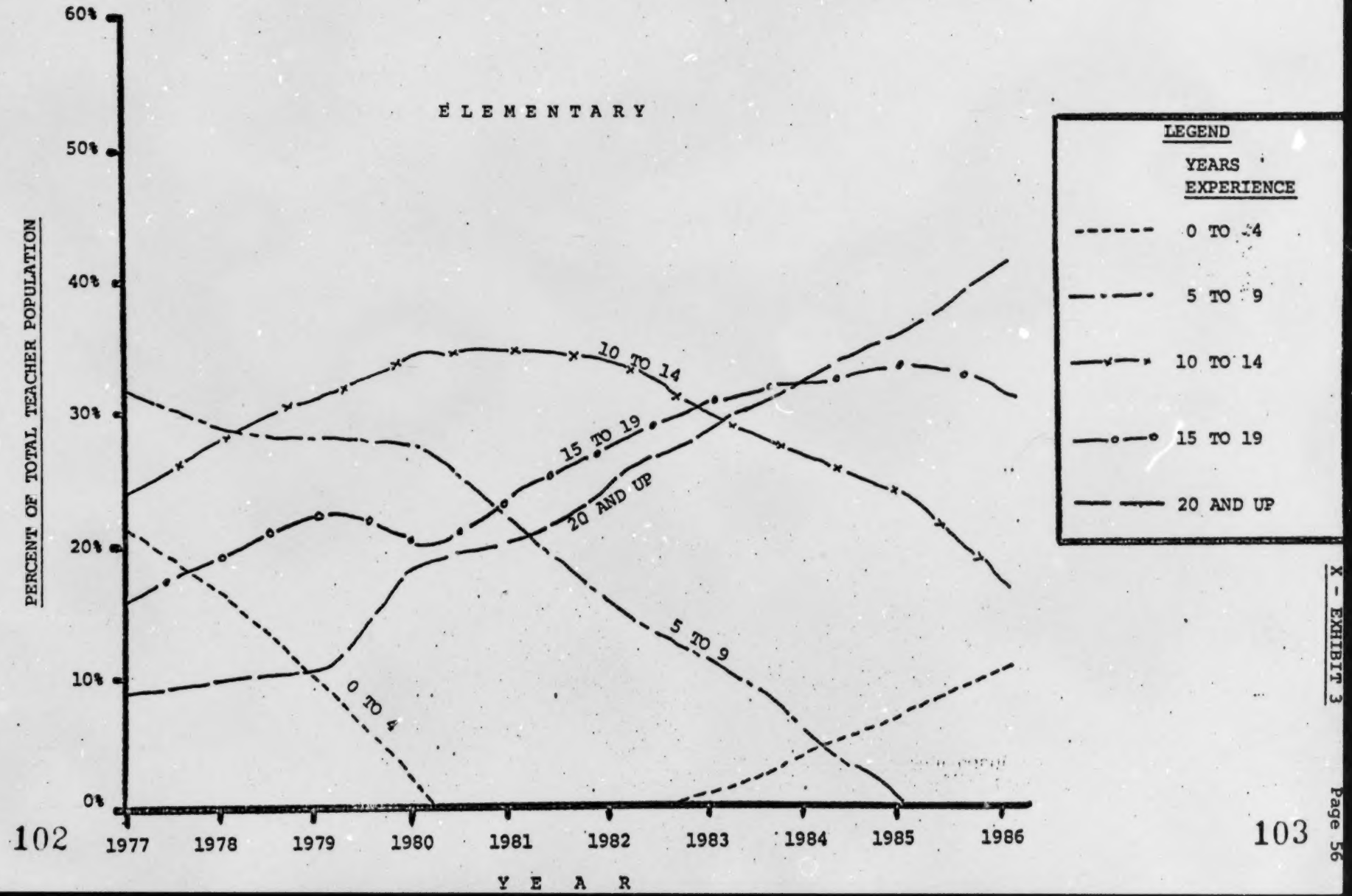
BOARD: METRO TOTALS PANEL: SECONDARY

YEAR	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
PERCENTAGE OF TEACHERS										
-WITH 5 OR MORE YEARS OF EXPERIENCE	80.1%	80.9%	86.2%	91.5%	97.3%	100.0%	100.0%	100.0%	99.5%	97.7%
-WITH 10 OR MORE YEARS OF EXPERIENCE	54.8%	58.5%	63.0%	68.6%	75.1%	81.0%	86.0%	92.1%	96.3%	97.7%
-WITH 15 OR MORE YEARS OF EXPERIENCE	31.8%	34.9%	39.3%	44.0%	50.2%	56.5%	63.4%	69.1%	74.6%	79.2%
-WITH 20 OR MORE YEARS OF EXPERIENCE	11.2%	11.9%	13.6%	22.9%	27.4%	32.1%	37.4%	42.8%	47.7%	53.2%

X - EXHIBIT 2
Teacher Experience
Secondary

THE METROPOLITAN TORONTO SCHOOL BOARD

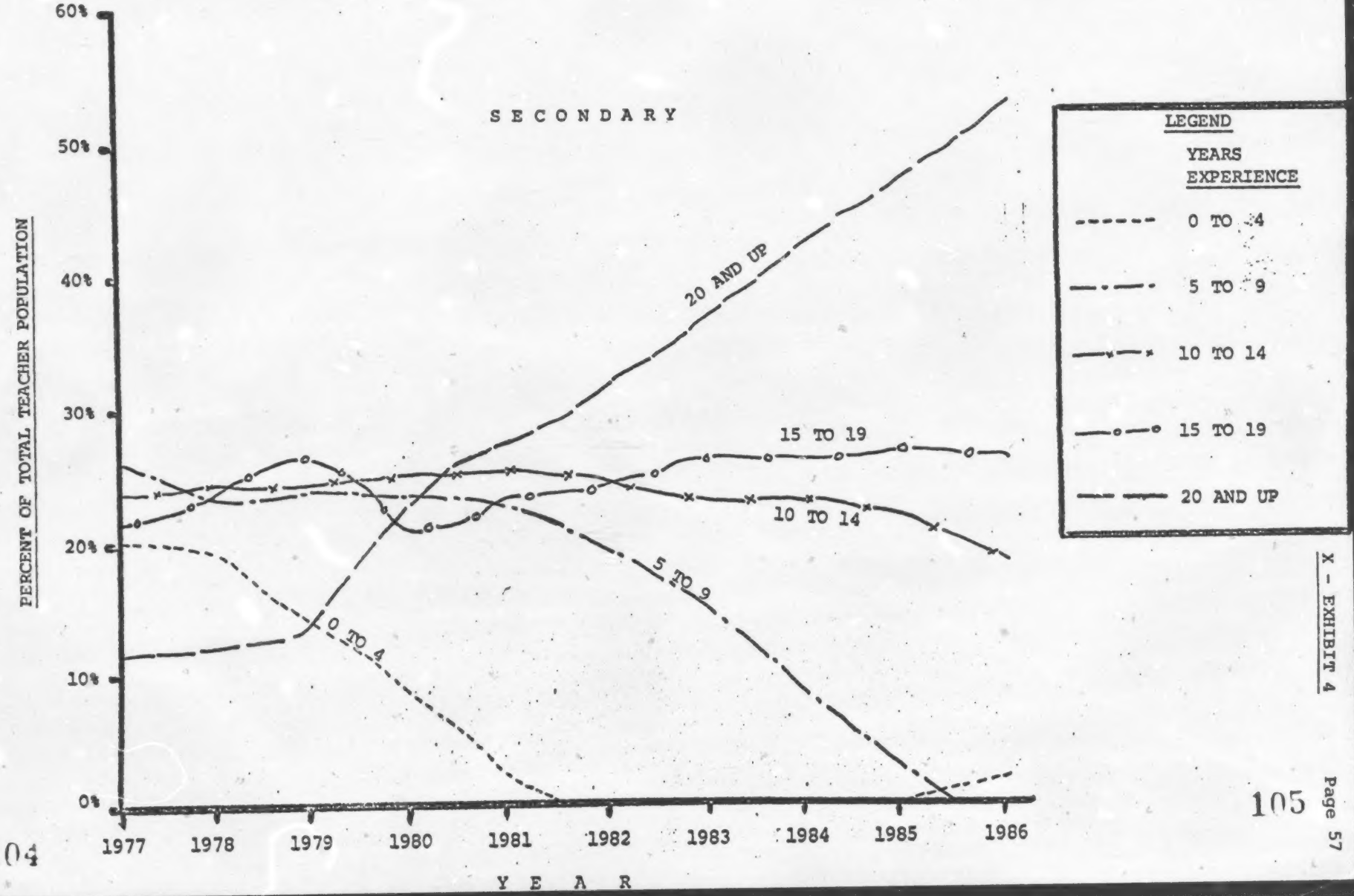
PROJECTION OF TEACHER EXPERIENCE GROUPS AS PERCENT OF TOTAL TEACHER POPULATION



X - EXHIBIT 3

THE METROPOLITAN TORONTO SCHOOL BOARD

PROJECTION OF TEACHER EXPERIENCE GROUPS AS PERCENT OF TOTAL TEACHER POPULATION



X - EXHIBIT 4 Page 57

XI. SUMMARY

Over the next ten years with the decline in enrolment and the decrease in teacher requirement, the average salary of teachers will increase in uninflated dollars mainly through the increase in the average experience of teachers. Boards with lower than average teaching experience will face a greater increase in average salary during the period of declining enrolments than boards with a higher than average teaching experience. Attrition rates do not have as significant an impact on average salaries as the experience factor noted above. An increase or decrease in pupil/teacher ratio has its greatest impact on average salaries in the first year of implementation. The timing, duration and magnitude of the impact on average teacher's salary is dependent on the particular enrolment projection used.

In Metropolitan Toronto, in elementary schools, it appears that the average salary in uninflated dollars may increase up to about 10% over the next ten years of which up to approximately 6% would have been experienced if there had been a static enrolment. In secondary schools the average salary in uninflated dollars will increase up to about 11% of which approximately 6% would have been experienced if there had been a static enrolment.

Because it appears that the elementary enrolment decline over the next ten years in Metropolitan Toronto will be more severe than the average enrolment decline across the Province of Ontario, the impact of declining enrolments on average elementary teaching salaries will likely not be as great or as immediate throughout the rest of the Province as in Metropolitan Toronto. It appears that the secondary enrolment decline in Metro will follow a pattern similar to that projected for the entire Province and thus the impact on secondary teachers' average salaries over the next ten years should also be similar.